ALPINE®

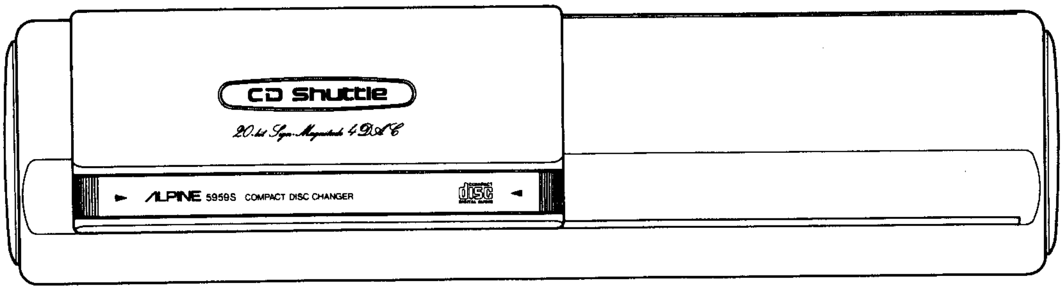
SERVICE MANUAL

Compact Disc Remote Changer

CD Shuttle

COMPACT
disc
DIGITAL AUDIO

- The model described in this manual is developed from Model 5959. For information that is not mentioned in this service manual, refer to the Service Manual 5959 (68P32103W02).
- For the CD deck mechanism parts (DR24A030) of this model, refer to the Service Manual • DR Series (68P30571W03).


CD Shuttle
20-bit Sign-Magnitude 4 DAC
ALPINE 5959S COMPACT DISC CHANGER
COMPACT disc DIGITAL AUDIO

5959S

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Spare Schematic Diagram Inserted.

Specifications
Operation
Disassembly Instructions
Adjustment Locations
Description of IC Terminal
Packing Method View

— Refer to the Service Manual 5959 (68P32103W02).

FEATURES

The 5959S incorporates the latest technology with the following unique functions and features:

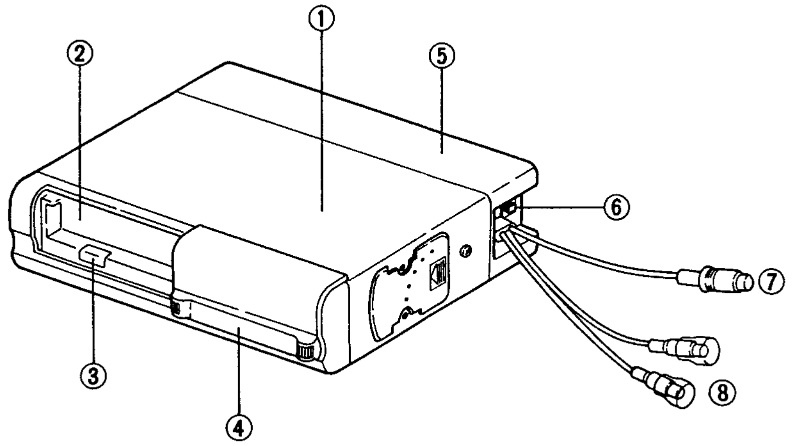
- **OPTICAL DIGITAL OUTPUT**
- **CD Shuttle MOUNTING VERSATILITY**
  The space-saving CD Shuttle can be mounted in a horizontal position, vertical position or one of the other three preset angles between 0° to 90°. This allows the installer to choose from a variety of mounting locations including: the trunk, under or behind the seat, or the glove compartment.
- **8X OVERSAMPLING**
- **20-bit SIGN-MAGNITUDE DAC**
  The Sign-Magnitude method of digital to analog conversion minimizes the zero-crossing distortion. 20-bit technology increases dynamic range and signal-to-noise.
- **HIGH PERFORMANCE, ISOLATED AUDIO SECTION**
  By separating the audio section into its own isolated box, performance equal to high-grade, home preamplifiers is achieved.
- **MAGAZINE HOUSING 6 CDs**
  Six 5-inch (12 cm) compact discs can be housed in the CD magazine and selected by operating your control unit. Any one of the 6 CDs in the magazine can be quickly and easily accessed for playback of the entire disc or individual selections.

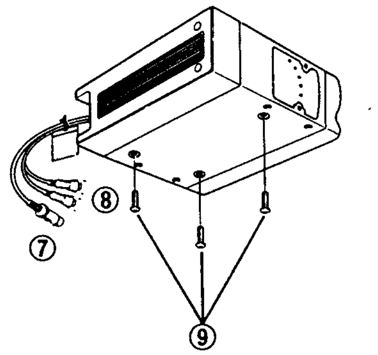
IMPORTANT NOTICE

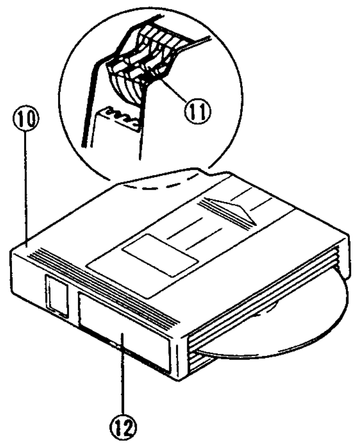
This compact disc Shuttle has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules. This equipment generates and uses radio frequency energy, and it must be installed and used properly in accordance with the manufacturer's instructions.

PARTS IDENTIFICATION

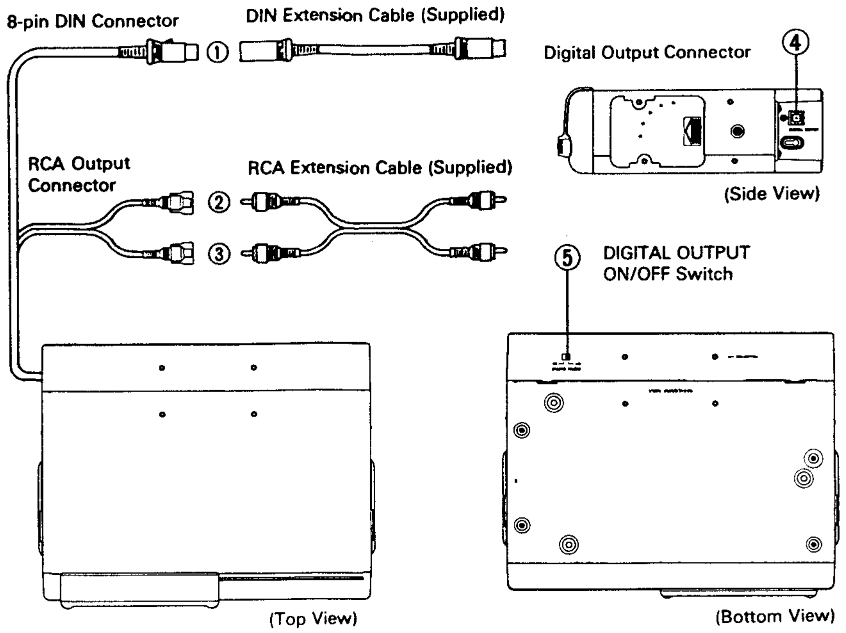
① **CD Shuttle Unit**
② **CD Magazine Insertion Slot**
③ **Eject Button**
Press this button to eject the CD magazine.
④ **CD Magazine Door**
⑤ **Audio Block**
⑥ **Digital Output Connector**
⑦ **8-pin DIN Connector**
⑧ **Audio Connectors (RCA type) for the Right and Left Channels**
⑨ **Shipping Screws**
Must be removed before operating the unit.
⑩ **CD Magazine**
6 discs can be housed in this case.
⑪ **Disc Lever**
⑫ **Disc Index Labels**
Put the Index Label on the CD Magazine.







CONNECTIONS



The 5959S CD Shuttle is not equipped with built-in control unit and power amplifier. Consult with your authorized Alpine dealer for connections of your control unit and power amplifier. Refer to the illustration above for connections of the Shuttle.

NOTE:

The 5959S is designed for 12-volt DC negative ground operation so make sure that your vehicle has this system before making electrical connections.

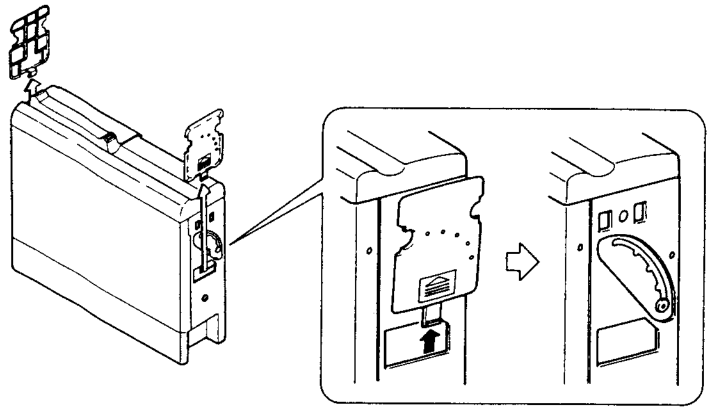
① **8-pin DIN Connector**
Connect this to your control unit or changer control input of your Alpine Shuttle-ready head unit.
② **Right Channel RCA Output Connector (Red)**
Connect this to the right channel input of your control unit.
③ **Left Channel RCA Output Connector (White)**
Connect this to the left channel input of your control unit.
④ **Digital Output Connector**
Connect this output to a processor having a corresponding optical digital input using the fiber-optic cable supplied with the processor.
⑤ **DIGITAL OUTPUT ON/OFF Switch**
Use this switch to turn the digital outputs on and off. Always set to the OFF position when the digital outputs are not being used.

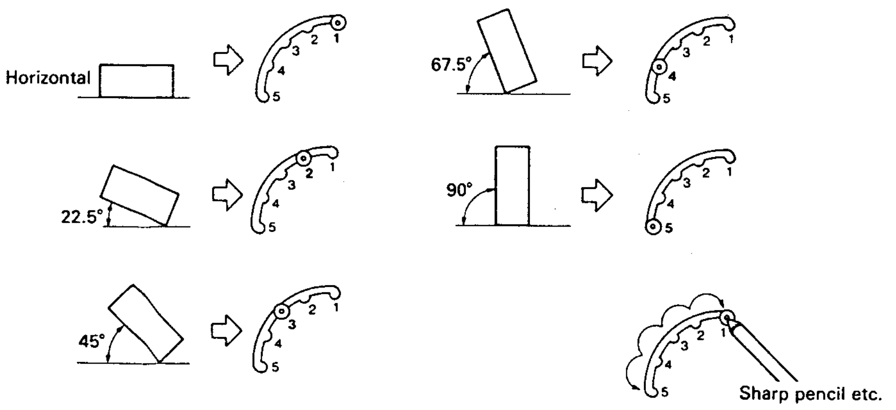
INSTALLATION

Changing of Spring Position

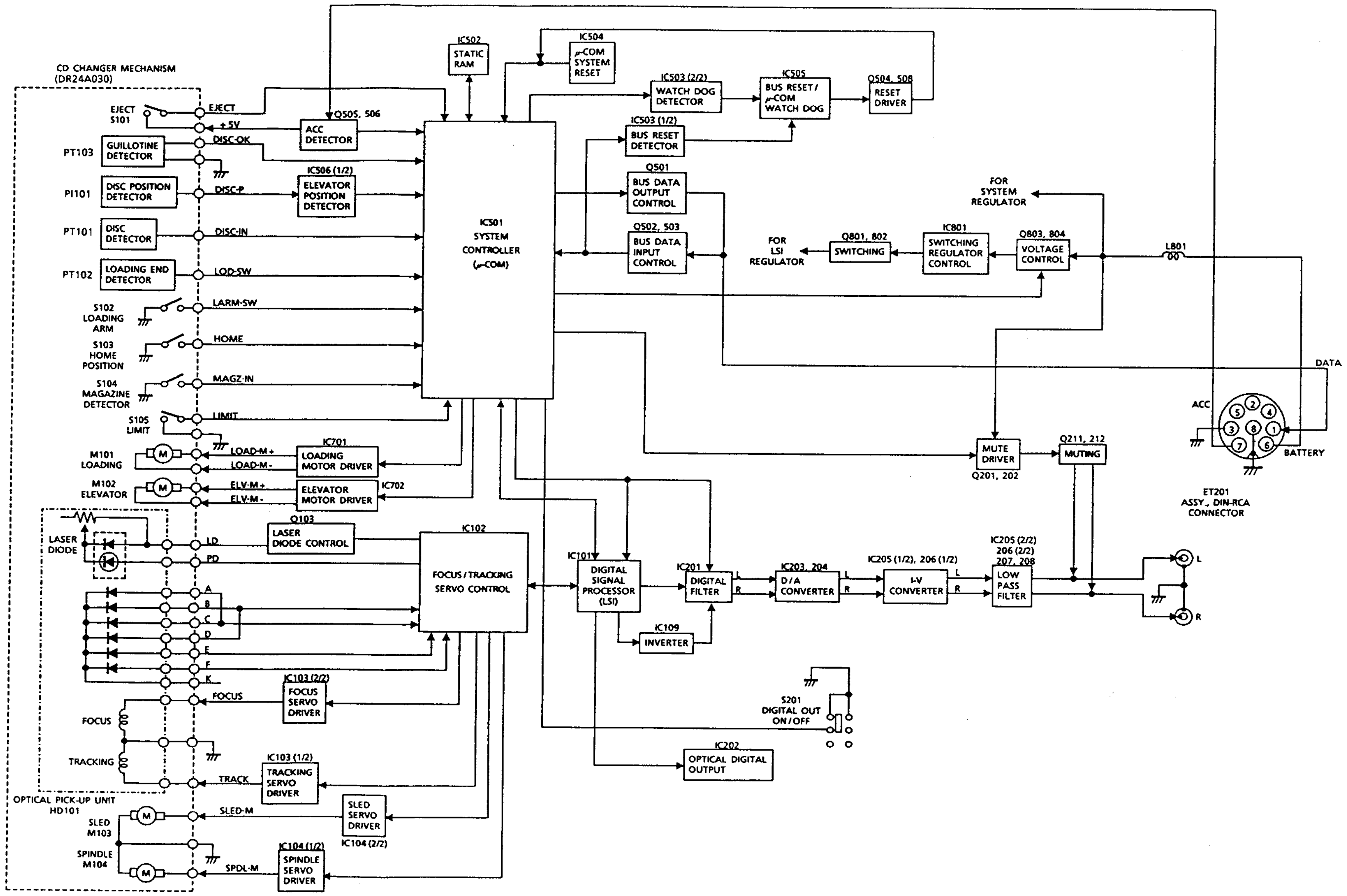
Make sure the mounting angle of the Shuttle installation will fall within the five preset positions (22.5° or 45° from the horizontal or vertical position). The Shuttle is preset at the factory for horizontal mounting. If you wish to install it at any other angle, change the spring configuration as shown.

Slide, in the direction of the arrows, then remove the left and right side covers. Change the position of the spring with your finger or a pointed object. Use the figure below to determine which spring position would be best suited for your chosen mounting location. If the spring configuration is incorrect or the spring positions on the left and right sides are not the same, the shock absorbing mechanism will not function properly. This will prevent the CD Shuttle from operating at its best.

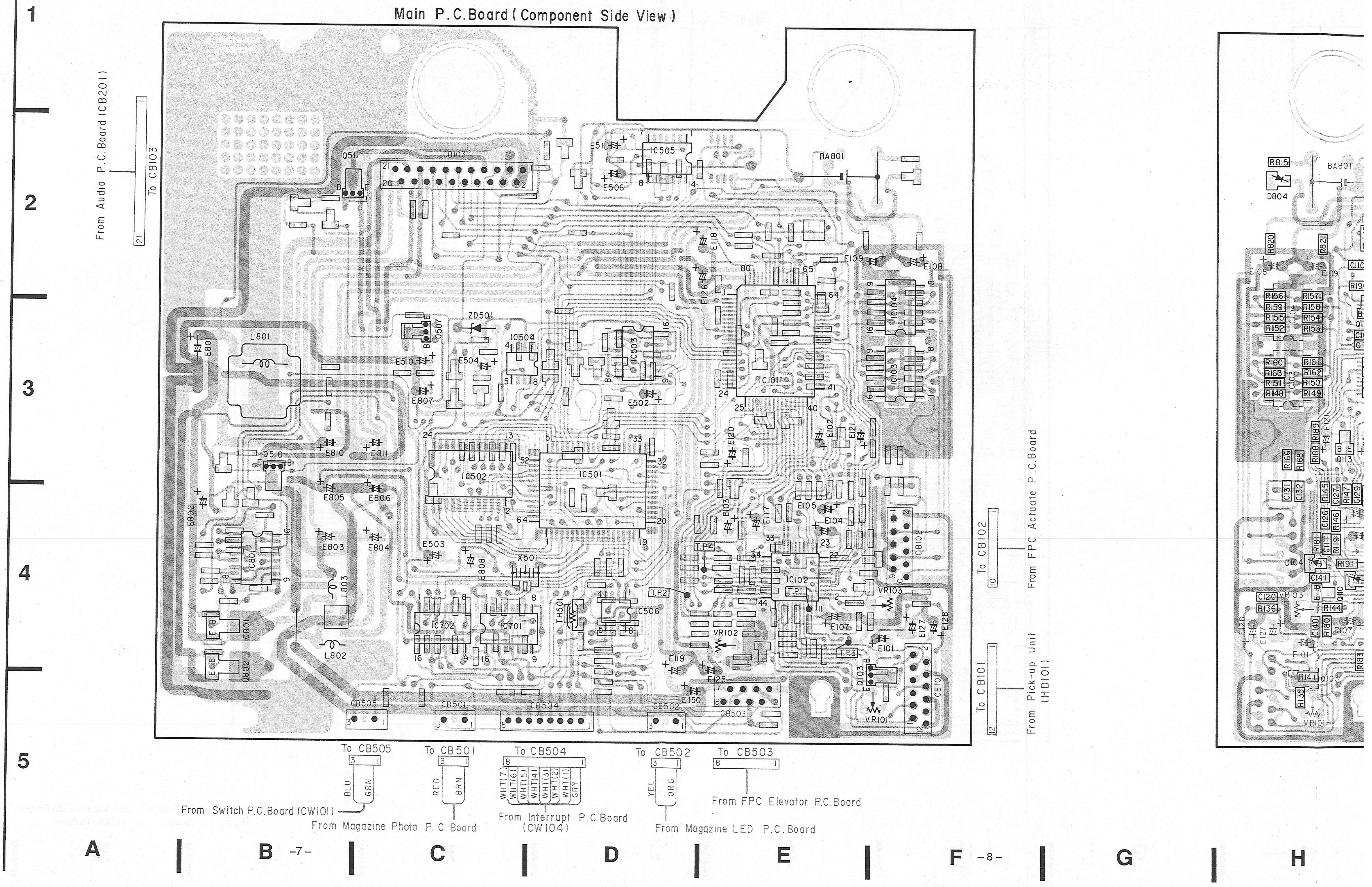


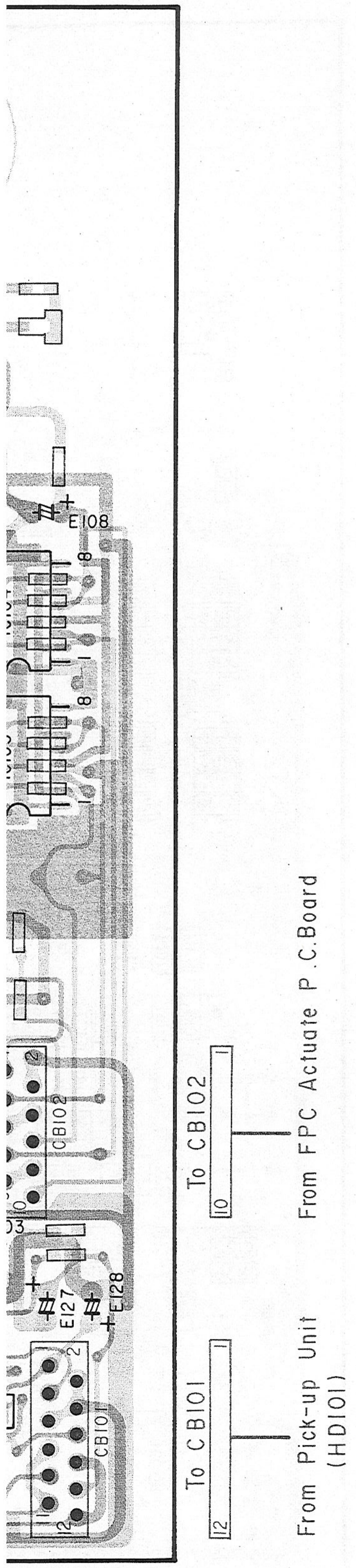

Horizontal
67.5°
22.5°
90°
45°
1
2
3
4
5
Sharp pencil etc.

Block Diagram

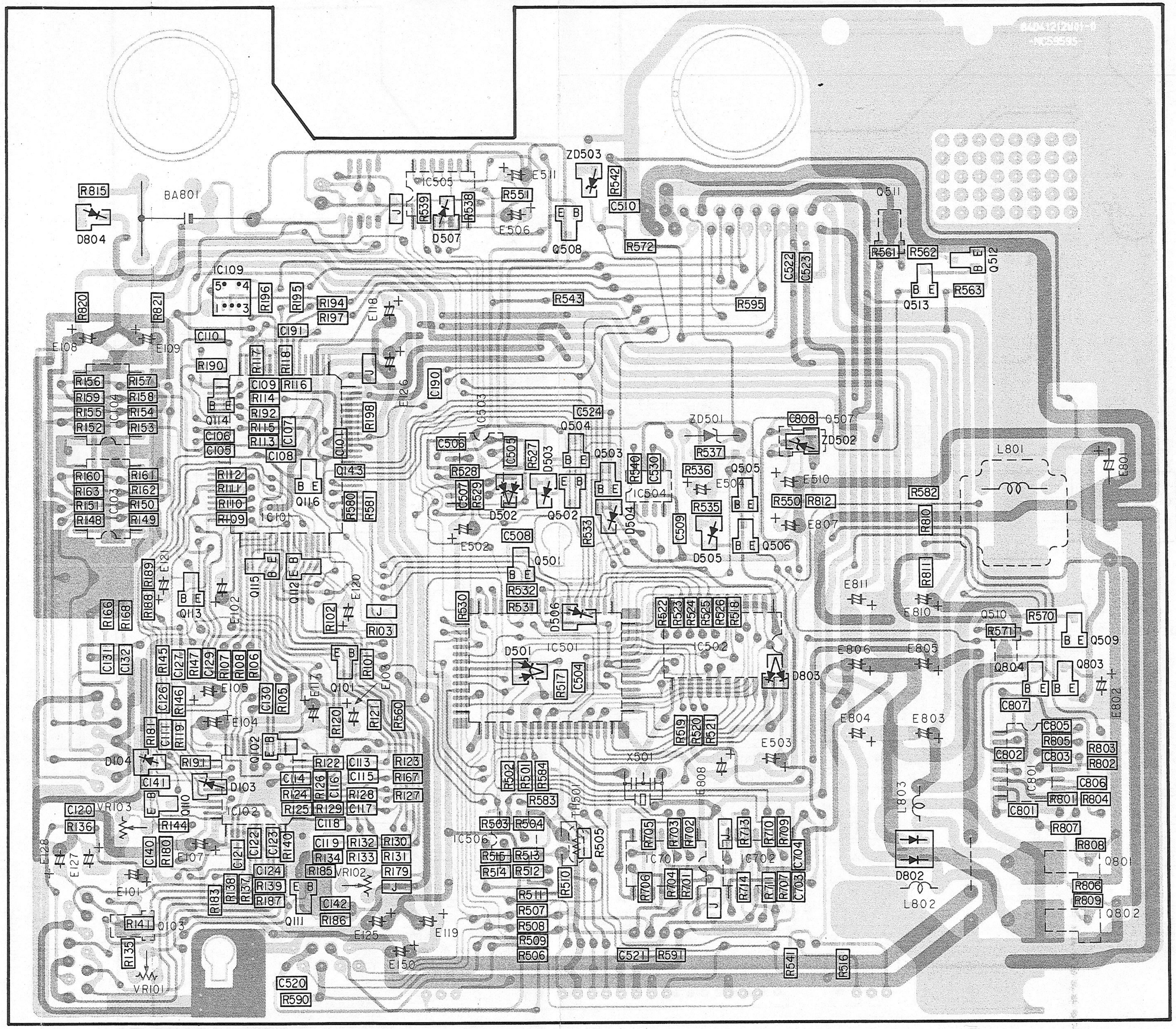

CD CHANGER MECHANISM
(DR24A030)
EJECT
S101
EJECT
+5V
DISC-OK
PT103
GUILLOTINE DETECTOR
PI101
DISC POSITION DETECTOR
DISC-P
PT101
DISC DETECTOR
DISC-IN
PT102
LOADING END DETECTOR
LOD-SW
S102
LOADING ARM
LARM-SW
S103
HOME POSITION
HOME
S104
MAGAZINE DETECTOR
MAGZ-IN
S105
LIMIT
LIMIT
M101
LOADING
LOAD-M+
LOAD-M-
M102
ELEVATOR
ELV-M+
ELV-M-
LASER DIODE
LD
PD
A
B
C
D
E
F
K
FOCUS
FOCUS
TRACKING
TRACK
OPTICAL PICK-UP UNIT
HD101
SLED
M103
SLED-M
SPINDLE
M104
SPDL-M
Q505, 506
ACC DETECTOR
IC506 (1/2)
ELEVATOR POSITION DETECTOR
IC701
LOADING MOTOR DRIVER
IC702
ELEVATOR MOTOR DRIVER
Q103
LASER DIODE CONTROL
IC103 (2/2)
FOCUS SERVO DRIVER
IC103 (1/2)
TRACKING SERVO DRIVER
SLED SERVO DRIVER
IC104 (2/2)
IC104 (1/2)
SPINDLE SERVO DRIVER
IC502
STATIC RAM
IC504
μ-COM SYSTEM RESET
IC501
SYSTEM CONTROLLER
(μ-COM)
IC503 (2/2)
WATCH DOG DETECTOR
IC505
BUS RESET/ μ-COM WATCH DOG
Q504, 508
RESET DRIVER
IC503 (1/2)
BUS RESET DETECTOR
Q501
BUS DATA OUTPUT CONTROL
Q502, 503
BUS DATA INPUT CONTROL
FOR SYSTEM REGULATOR
FOR LSI REGULATOR
Q801, 802
SWITCHING
IC801
SWITCHING REGULATOR CONTROL
Q803, 804
VOLTAGE CONTROL
L801
DATA
ACC
BATTERY
1
2
3
4
5
6
7
8
ET201
ASSY., DIN-RCA CONNECTOR
MUTE DRIVER
Q201, 202
Q211, 212
MUTING
IC102
FOCUS / TRACKING SERVO CONTROL
IC101
DIGITAL SIGNAL PROCESSOR (LSI)
IC201
DIGITAL FILTER
IC109
INVERTER
IC203, 204
D/A CONVERTER
IC205 (1/2), 206 (1/2)
I-V CONVERTER
IC205 (2/2)
206 (2/2)
207, 208
LOW PASS FILTER
L
R
S201
DIGITAL OUT ON/OFF
IC202
OPTICAL DIGITAL OUTPUT

Parts Layout on P.C. Boards and Wiring Diagram (1/2)


Main P.C.Board (Component Side View)
1
2
3
4
5
From Audio P.C.Board (CB201)
To CB103
21
1
Q511
CB103
BA801
IC505
E511
E506
ZD501
Q507
IC504
IC503
IC101
IC104
IC103
L801
E801
E510
E504
E807
E502
E118
E126
E109
E108
Q510
IC502
IC501
E810
E811
E805
E806
E802
IC801
E803
E804
E503
E808
X501
L803
Q801
Q802
L802
IC702
IC701
TH501
IC506
IC102
CB102
VR103
VR102
VR101
Q103
CB101
T.P.1
T.P.2
T.P.3
T.P.4
E101
E102
E103
E104
E105
E107
E117
E119
E120
E121
E125
E127
E128
E150
CB505
CB501
CB504
CB502
CB503
To CB102
From FPC Actuate P.C.Board
To CB101
From Pick-up Unit (HD101)
To CB505
BLU
GRN
From Switch P.C.Board (CW101)
To CB501
RED
BRN
From Magazine Photo P. C. Board
To CB504
WHT(7)
WHT(6)
WHT(5)
WHT(4)
WHT(3)
WHT(2)
WHT(1)
GRY
From Interrupt P.C.Board (CW104)
To CB502
YEL
ORG
From Magazine LED P.C.Board
To CB503
From FPC Elevator P.C.Board
R815
BA801
D804
R820
R821
E108
E109
R156
R157
R159
R158
R155
R154
R152
R153
R160
R161
R163
R162
R151
R150
R148
R149
R166
R168
R188
R189
Q113
C131
C132
R145
C127
R147
C129
C126
R146
R181
C111
R119
R191
D104
C141
C120
VR103
R136
R144
C140
R180
E107
E128
E127
E101
R141
Q103
R135
VR101
A
B
C
D
E
F
G
H


E108
E127
E128
CB102
CB101
To CB102
From FPC Actuate P.C.Board
To CB101
From Pick-up Unit (HD101)
1
10
12

Main P.C. Board (Foil Side View)

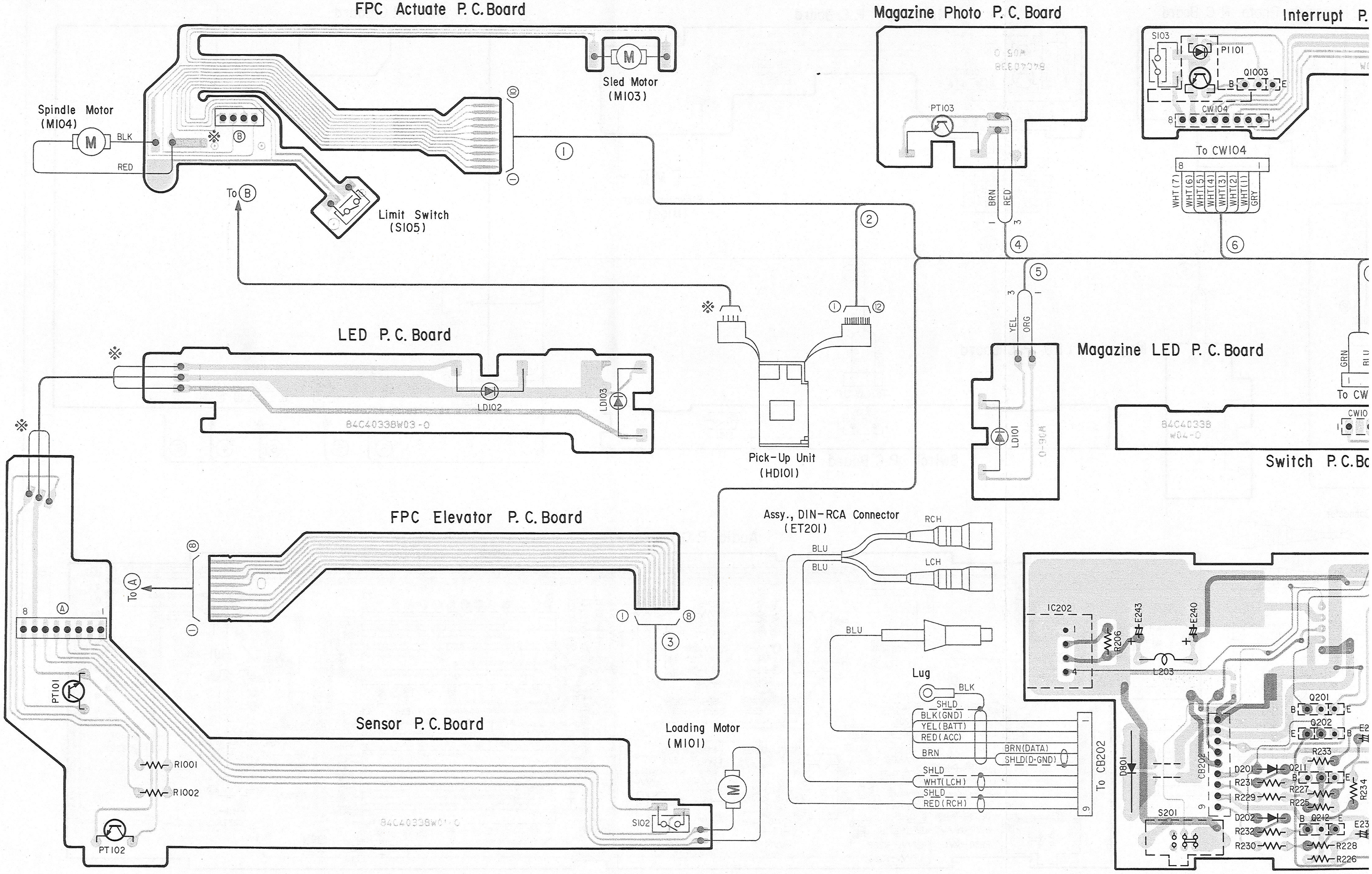

R815
BA801
D804
IC109
IC505
D507
R539
R538
E511
R551
E506
ZD503
R542
C510
Q508
R572
R543
R595
C522
C523
Q511
R561
R562
Q512
Q513
R563
R820
R821
E108
E109
C110
R190
R196
R195
R194
R197
C191
E118
R117
R118
R116
C109
R114
R192
R115
R113
C107
C106
C105
C108
Q114
R156
R157
R159
R158
R155
R154
R152
R153
IC104
R160
R161
R163
R162
R151
R150
R148
R149
IC103
R112
R111
R110
R109
IC101
Q116
Q143
R580
R581
R198
C190
IC503
C524
Q504
C506
C505
R527
D503
R528
R529
C507
D502
Q502
Q503
R533
D504
R540
C530
IC504
C509
ZD501
R537
R536
E504
Q505
R535
D505
Q506
C808
Q507
ZD502
E510
E807
R550
R812
R582
L801
R810
E801
C508
E502
Q501
R532
R531
R530
D506
R622
R523
R524
R525
R526
R518
IC502
D803
D501
IC501
R517
C504
R519
R520
R521
E503
X501
E808
R502
R501
R584
R583
R503
R504
IC506
R516
R513
R514
R512
VR501
R505
R510
R511
R507
R508
R509
R506
R705
R703
R702
R713
R710
R709
IC701
IC702
C704
R706
R704
R701
R714
R711
R707
C703
C521
R591
R541
R516
C520
R590
E811
R811
E810
Q510
R570
R571
Q509
E806
E805
Q804
Q803
E802
C807
E804
E803
C805
C803
C802
C806
C804
R803
R802
R804
R801
C801
R807
R808
Q801
R806
R809
Q802
L803
D802
L802
R189
R188
E121
Q113
E102
Q115
Q112
E120
R102
R103
R166
R168
C131
C132
R145
C127
R147
C129
R107
R108
R106
E105
C126
R146
C130
R105
E117
Q101
R101
E103
R181
C111
R119
E104
R120
R121
R560
D104
R191
Q102
C141
D103
R122
C113
R123
C114
R126
C116
C115
R167
R124
R128
R127
R125
R129
C117
C120
VR103
R136
IC102
R144
C118
C119
R132
R130
C140
R180
E107
C121
C122
C123
R140
R134
R133
R131
R185
VR102
R179
E126
E127
E101
R183
R138
R137
C124
R139
R187
C142
R186
Q111
E125
E119
E150
R141
Q103
R135
VR101

Orange Color Pattern : Component Side Pattern
Blue Color Pattern : Foil Side Pattern

F G H I J K L M

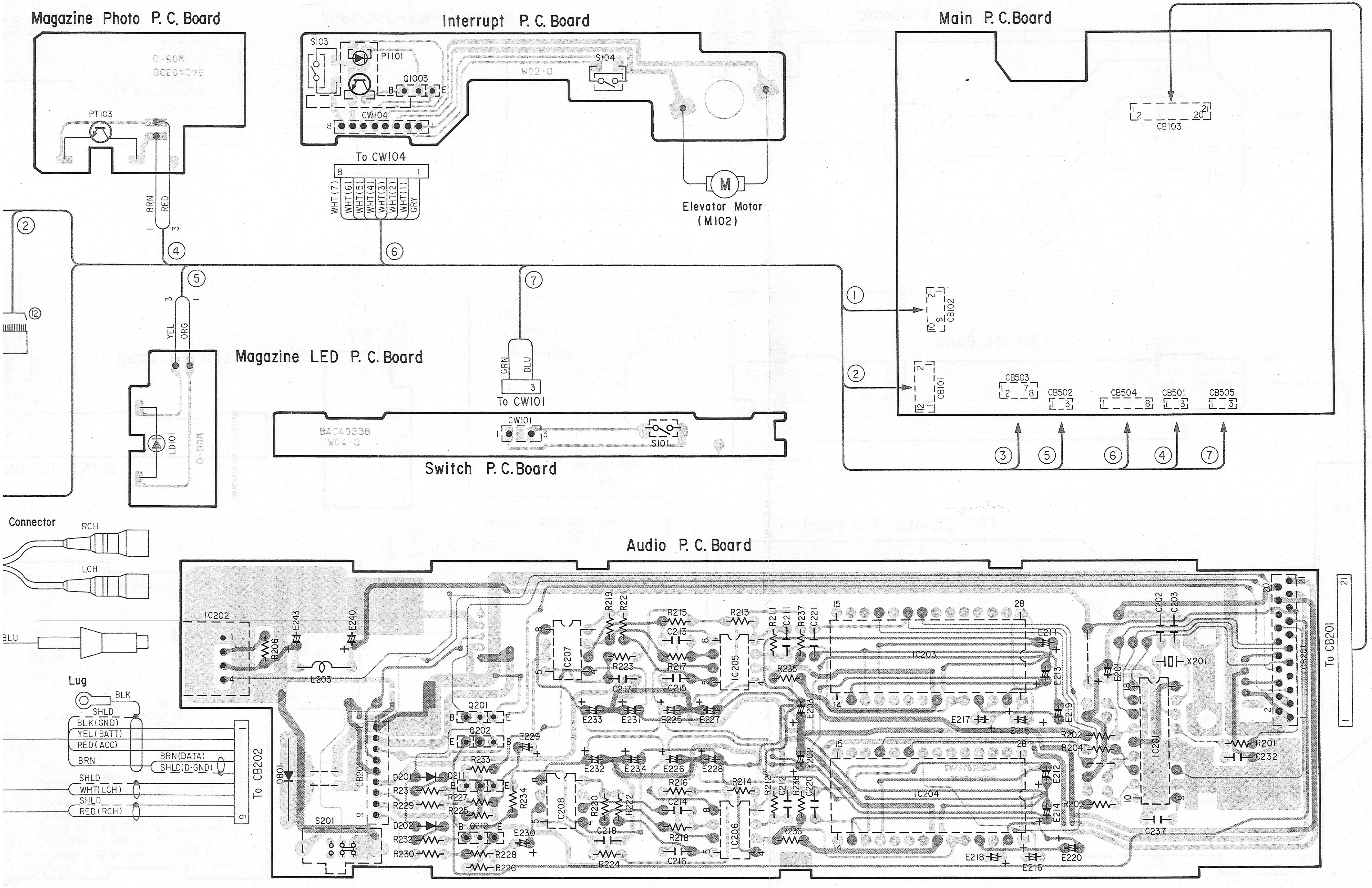
Parts Layout on P.C. Boards and Wiring Diagram (2/2)

All P.C. Boards viewed from soldered side.


FPC Actuate P.C. Board
Sled Motor (M103)
Spindle Motor (M104)
BLK
RED
Limit Switch (S105)
To B
Magazine Photo P.C. Board
PT103
BRN
RED
Interrupt P.
S103
PI101
Q1003
CW104
To CW104
WHT(7)
WHT(6)
WHT(5)
WHT(4)
WHT(3)
WHT(2)
WHT(1)
GRY
LED P.C. Board
LD102
LD103
84C40338W03-0
Pick-Up Unit (HD101)
YEL
ORG
Magazine LED P.C. Board
LD101
GRN
To CW
CW10
84C40338 W04-0
Switch P.C. Bo
FPC Elevator P.C. Board
To A
Sensor P.C. Board
PT101
R1001
R1002
PT102
84C40338W01-0
Loading Motor (M101)
S102
Assy., DIN-RCA Connector (ET201)
RCH
LCH
BLU
Lug
BLK
SHLD
BLK(GND)
YEL(BATT)
RED(ACC)
BRN
BRN(DATA)
SHLD(D·GND)
WHT(LCH)
RED(RCH)
To CB202
IC202
R206
E243
E240
L203
D801
CB202
S201
Q201
Q202
R233
D201
Q211
R231
R227
R229
R225
R234
D202
Q212
R232
R228
R230
R226

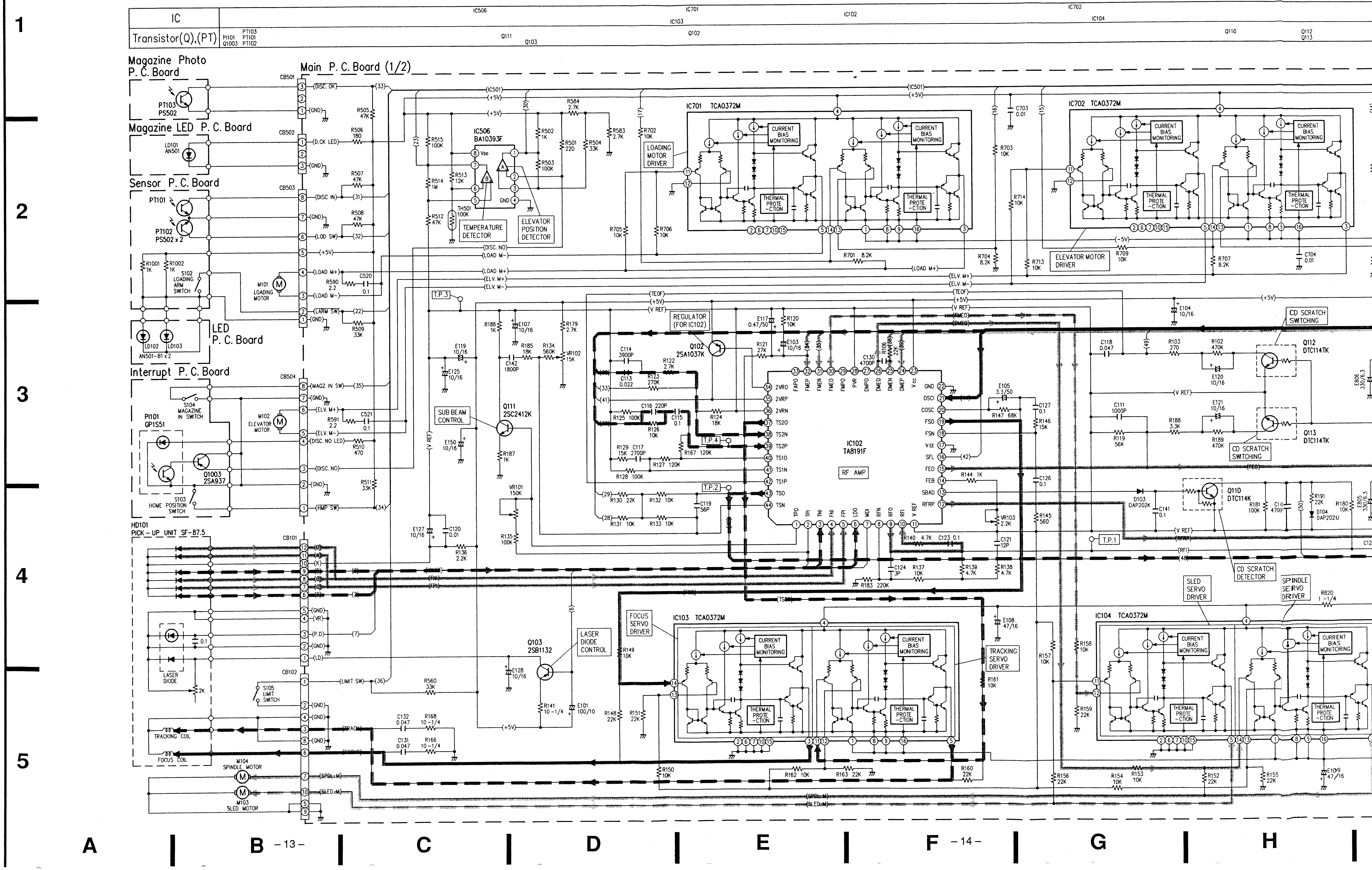
from soldered side.

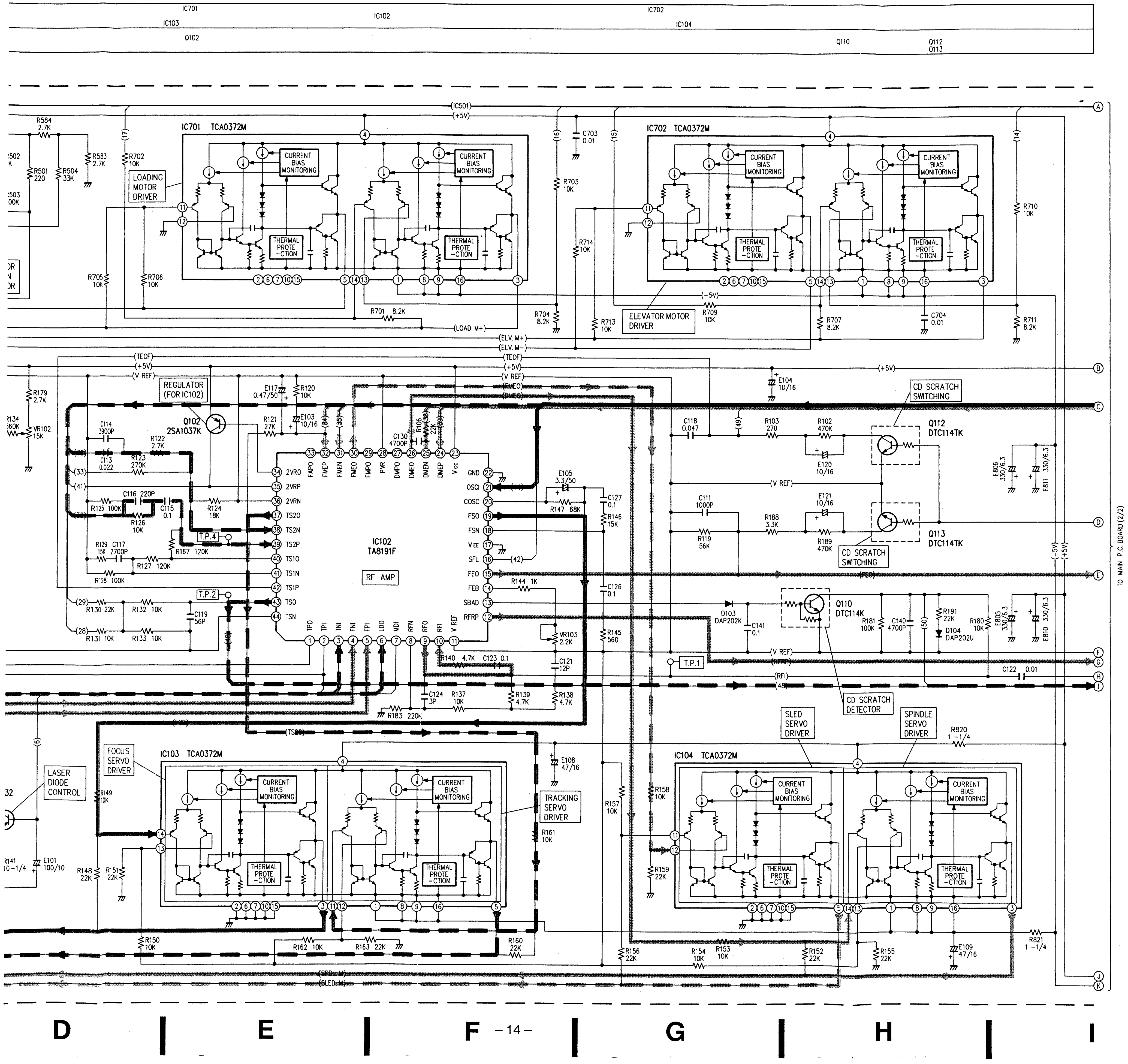
Orange Color Pattern : Component Side Pattern
Blue Color Pattern : Foil Side Pattern


Magazine Photo P. C. Board
PT103
BRN
RED
Interrupt P. C. Board
S103
P1101
Q1003
S104
CW104
W02-0
To CW104
WHT(7)
WHT(6)
WHT(5)
WHT(4)
WHT(3)
WHT(2)
WHT(1)
GRY
M
Elevator Motor
(M102)
Main P. C. Board
CB103
CB102
CB101
CB503
CB502
CB504
CB501
CB505
①
②
③
④
⑤
⑥
⑦
⑫
YEL
ORG
Magazine LED P. C. Board
LD101
W06-0
GRN
BLU
To CW101
CW101
S101
84C40336
W04-0
Switch P. C. Board
Connector
RCH
LCH
BLU
Lug
BLK
SHLD
BLK(GND)
YEL(BATT)
RED(ACC)
BRN
BRN(DATA)
SHLD(D-GND)
WHT(LCH)
RED(RCH)
To CB202
Audio P. C. Board
IC202
R206
E243
E240
L203
D801
S201
CB202
Q201
Q202
E229
R233
D201
Q211
R231
R227
R229
R225
R234
D202
Q212
E230
R232
R228
R230
R226
C207
R219
R221
R223
C217
E233
E231
C208
R220
R222
C218
R224
E232
E234
R215
C213
R217
C215
E225
E227
IC205
E226
E228
R216
C214
R218
C216
IC206
R213
R211
C211
R237
C221
R235
R214
R212
C212
R238
C220
R236
E203
E202
IC203
IC204
E211
E213
E219
E217
E215
E212
E214
E218
E216
E220
R202
R204
R205
E201
C202
C203
X201
IC201
C237
R201
C232
CB201
To CB201

F | G | H | I | J | K | L | M

Schematic Diagram (1/3)


IC
Transistor(Q),(PT)
IC506
IC701
IC103
IC102
IC702
IC104
PI101
Q1003
PT103
PT101
PT102
Q111
Q103
Q102
Q110
Q112
Q113
Magazine Photo P. C. Board
PT103 PS502
Magazine LED P. C. Board
LD101 AN501
Sensor P. C. Board
PT101
PT102 PS502 x 2
S102 LOADING ARM SWITCH
M101 LOADING MOTOR
LED P. C. Board
LD102
LD103
AN501-B1 x 2
Interrupt P. C. Board
S104 MAGAZINE IN SWITCH
M102 ELEVATOR MOTOR
PI101 GP1S51
Q1003 2SA937
S103 HOME POSITION SWITCH
HD101 PICK-UP UNIT SF-87.5
LASER DIODE
S105 LIMIT SWITCH
TRACKING COIL
FOCUS COIL
M104 SPINDLE MOTOR
M103 SLED MOTOR
Main P. C. Board (1/2)
CB501
CB502
CB503
CB504
CB101
CB102
IC506 BA10393F
TEMPERATURE DETECTOR
ELEVATOR POSITION DETECTOR
TH501 100K
IC701 TCA0372M
LOADING MOTOR DRIVER
CURRENT BIAS MONITORING
THERMAL PROTE -CTION
IC702 TCA0372M
ELEVATOR MOTOR DRIVER
REGULATOR (FOR IC102)
Q102 2SA1037K
IC102 TA8191F
RF AMP
SUB BEAM CONTROL
Q111 2SC2412K
LASER DIODE CONTROL
Q103 2SB1132
FOCUS SERVO DRIVER
IC103 TCA0372M
TRACKING SERVO DRIVER
CD SCRATCH SWITCHING
Q112 DTC114TK
Q113 DTC114TK
Q110 DTC114K
D103 DAP202K
D104 DAP202U
CD SCRATCH DETECTOR
SLED SERVO DRIVER
SPINDLE SERVO DRIVER
IC104 TCA0372M
T.P.1
T.P.2
T.P.3
T.P.4
1
2
3
4
5
A
B
C
D
E
F
G
H


IC701
IC103
Q102
IC102
IC702
IC104
Q110
Q112
Q113
IC701 TCA0372M
IC702 TCA0372M
CURRENT BIAS MONITORING
THERMAL PROTE -CTION
LOADING MOTOR DRIVER
ELEVATOR MOTOR DRIVER
REGULATOR (FOR IC102)
Q102 2SA1037K
IC102 TA8191F
RF AMP
CD SCRATCH SWITCHING
Q112 DTC114TK
Q113 DTC114TK
Q110 DTC114K
CD SCRATCH DETECTOR
D103 DAP202K
D104 DAP202U
T.P.1
T.P.2
T.P.4
FOCUS SERVO DRIVER
LASER DIODE CONTROL
IC103 TCA0372M
TRACKING SERVO DRIVER
SLED SERVO DRIVER
SPINDLE SERVO DRIVER
IC104 TCA0372M
(IC501)
(+5V)
(-5V)
(LOAD M+)
(ELV. M+)
(ELV. M-)
(TEOF)
(V REF)
(FMEO)
(DMEO)
(FEO)
(RFRP)
(RFI)
(SPDL M)
(SLED M)
TO MAIN P.C. BOARD (2/2)
D
E
F
G
H
I
J
K

IC102

1	1.8V	11	2.1V	21	2.5V	31	2.1V	41	2.1V
2	2.1V	12	2.3V	22	0V	32	2.1V	42	2.1V
3	2.1V	13	2.4V	23	5.1V	33	2.1V	43	2.1V
4	2.1V	14	2.1V	24	2.2V	34	4.5V	44	2.1V
5	2.1V	15	2.1V	25	2.2V	35	4.2V		
6	PS	16	5.1V	26	PS	36	2.1V		
7	PS	17	0V	27	PS	37	2.1V		
8	PS	18	2.1V	28	2.1V	38	2.1V		
9	PS	19	2.1V	29	PS	39	2.1V		
10	PS	20	2.1V	30	PS	40	2.1V		

IC103

1	−5V	9	−5V
2	0V	10	0V
3	PS	11	0V
4	5.1V	12	0V
5	PS	13	1.5V
6	0V	14	1.5V
7	0V	15	0V
8	−5V	16	0V

IC104

1	−5V	9	−5V
2	0V	10	0V
3	PS	11	1.5V
4	5.1V	12	PS
5	PS	13	0V
6	0V	14	1.5V
7	0V	15	0V
8	−5V	16	0.2V

IC506

1	0V
2	5.1V
3	1.6V
4	0V
5	2V
6	5V
7	0V
8	5.1V

IC701

1	0.2V	9	0.2V
2	0V	10	0V
3	0.7V	11	0.7V
4	1.3V	12	0V
5	0.7V	13	0V
6	0V	14	0.4V
7	0V	15	0V
8	0.2V	16	0.2V

IC702

1	−5V	9	0.2V
2	0V	10	0V
3	0.7V	11	0.7V
4	1.2V	12	0V
5	0.7V	13	0V
6	0V	14	0.4V
7	0V	15	0V
8	0.2V	16	0.2V

	E	C	B
Q102	5.1V	4.2V	4.5V
Q103	5.1V	0V	4.7V
Q110	2.1V	2.4V	2.2V
Q111	1.2V	1.2V	1.8V
Q112	2.1V	2.1V	0V
Q113	2.1V	2.1V	0V

(Measuring Conditions)

1.Power Supply Voltage :DC14V
2.Measuring Meter :Digital Multi Volt Meter
3.Measuring Point Reference :Between Ground
4.Measuring Conditions :Test Disc Play (A-BEX TCD-782 Track NO.2 1KHz)
Digital Output Switch (OFF)

▨▨▨ CD Signal Line (Digital)
▬▬▬ Focus Servo Signal Line
▬ ▬ Tracking Servo Signal Line
▨▨▨ Spindle Servo Signal Line
▨ ▨ Sled Servo Signal Line

NOTES:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1,000,000}$

Schematic Diagram (2/3)

IC	IC502 IC501 IC101 IC109 IC504 IC503 IC801 IC505
Transistor (Q)	Q101 Q116 Q114 Q115 Q509 Q510 Q512 Q503 Q501 Q804 Q502 Q513 Q803 Q505 Q506 Q507 Q511 Q802 Q801 Q508 Q504

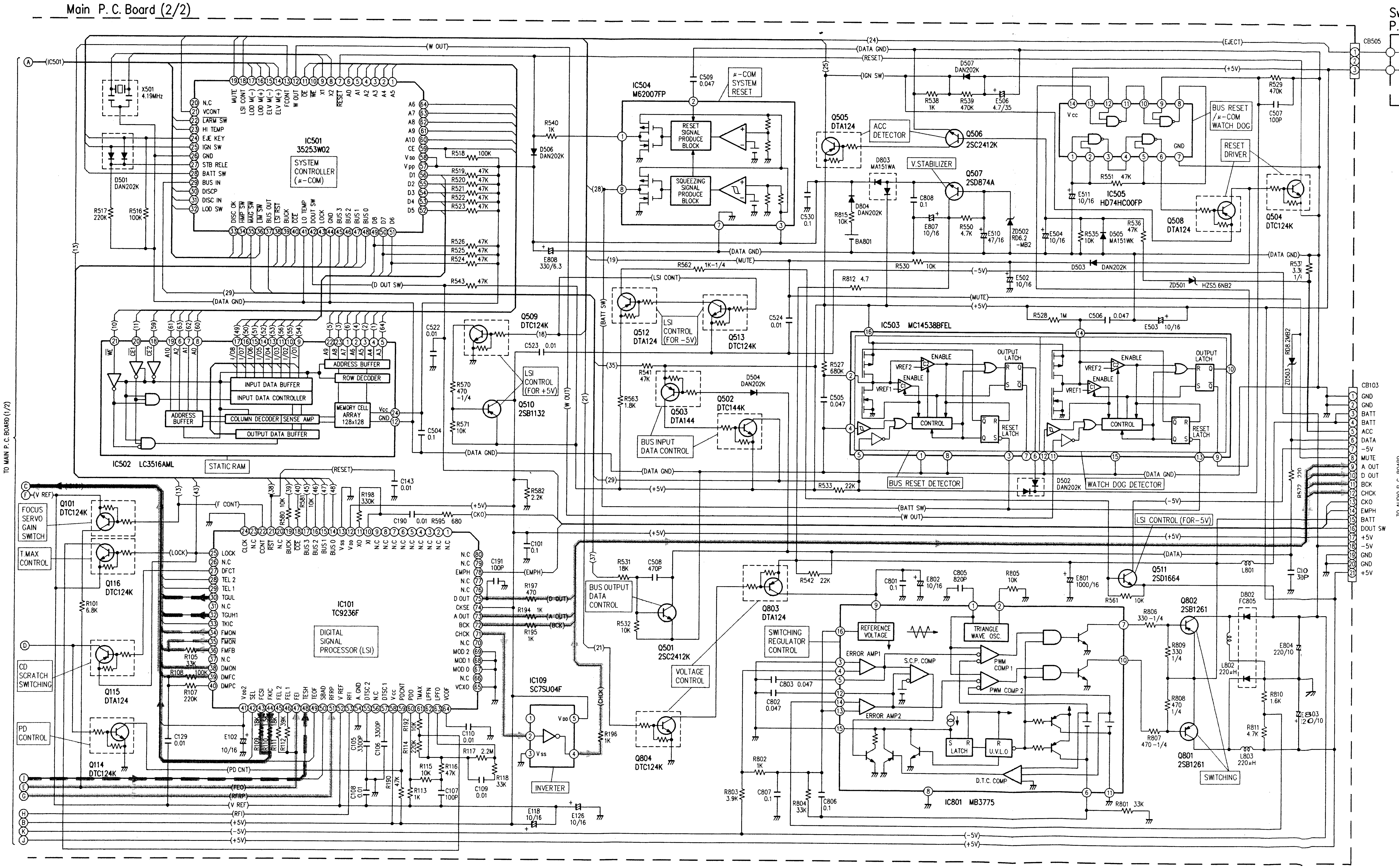
1

2

3

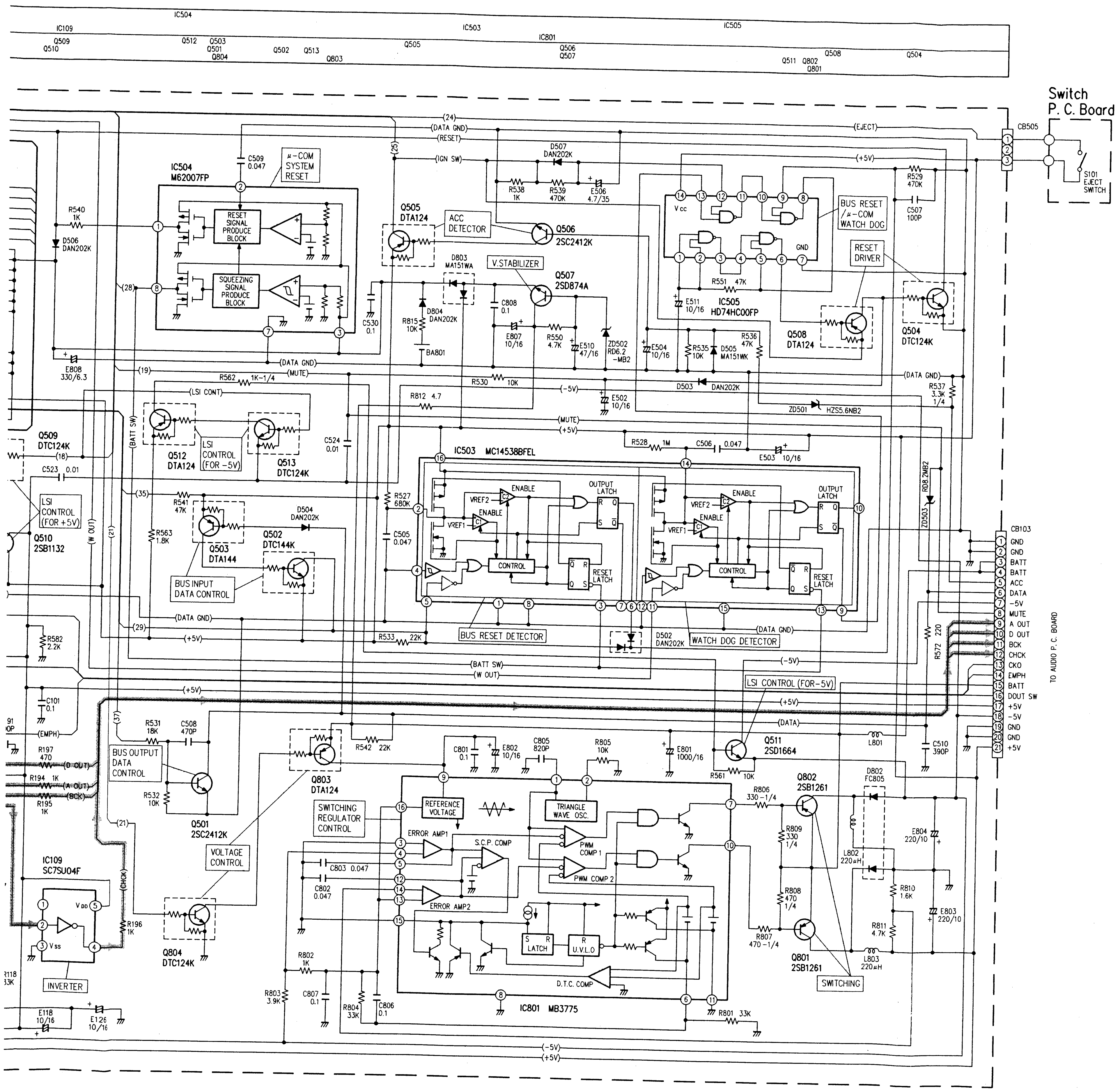
4

5



Main P. C. Board (2/2)
TO MAIN P. C. BOARD (1/2)
X501 4.19MHz
D501 DAN202K
R517 220K
R516 100K
IC501 35253W02
SYSTEM CONTROLLER (μ-COM)
N.C
VCONT
LARM SW
HI TEMP
EJE KEY
IGN SW
GND
STB RELE
BATT SW
BUS IN
DISCP
DISC IN
LOD SW
R540 1K
D506 DAN202K
E808 330/6.3
IC504 M62007FP
μ-COM SYSTEM RESET
C509 0.047
RESET SIGNAL PRODUCE BLOCK
SQUEEZING SIGNAL PRODUCE BLOCK
C530 0.1
Q505 DTA124
ACC DETECTOR
Q506 2SC2412K
D803 MA151WA
V.STABILIZER
Q507 2SD874A
D804 DAN202K
R815 10K
BA801
C808 0.1
E807 10/16
R550 4.7K
E510 47/16
ZD502 RD6.2-MB2
D507 DAN202K
R538 1K
R539 470K
E506 4.7/35
IC505 HD74HC00FP
BUS RESET /μ-COM WATCH DOG
RESET DRIVER
R529 470K
C507 100P
Q508 DTA124
Q504 DTC124K
R551 47K
E511 10/16
E504 10/16
R535 10K
D505 MA151WK
R536 47K
CB505
(EJECT)
(DATA GND)
(RESET)
(IGN SW)
(+5V)
(W OUT)
(D OUT SW)
(MUTE)
(-5V)
R530 10K
D503 DAN202K
ZD501 HZS5.6NB2
R531 3.3K
E502 10/16
R812 4.7
R562 1K-1/4
Q512 DTA124
LSI CONTROL (FOR -5V)
Q513 DTC124K
C524 0.01
R528 1M
C506 0.047
E503 10/16
IC503 MC14538BFEL
ENABLE
OUTPUT LATCH
CONTROL
RESET LATCH
BUS RESET DETECTOR
WATCH DOG DETECTOR
D502 DAN202K
R527 680K
C505 0.047
R533 22K
RD8.2MB2
ZD503
IC502 LC3516AML
STATIC RAM
ADDRESS BUFFER
ROW DECODER
INPUT DATA BUFFER
INPUT DATA CONTROLLER
MEMORY CELL ARRAY 128x128
COLUMN DECODER
SENSE AMP
OUTPUT DATA BUFFER
C522 0.01
C504 0.1
Q509 DTC124K
LSI CONTROL (FOR +5V)
Q510 2SB1132
R570 470 -1/4
R571 10K
C523 0.01
R541 47K
R563 1.8K
Q503 DTA144
D504 DAN202K
Q502 DTC144K
BUS INPUT DATA CONTROL
CB103
GND
GND
BATT
BATT
ACC
DATA
-5V
MUTE
A OUT
D OUT
BCK
CHCK
CKO
EMPH
BATT
DOUT SW
+5V
-5V
GND
GND
+5V
R572 220
Q101 DTC124K
FOCUS SERVO GAIN SWITCH
Q116 DTC124K
T.MAX CONTROL
R101 6.8K
Q115 DTA124
CD SCRATCH SWITCHING
Q114 DTC124K
PD CONTROL
IC101 TC9236F
DIGITAL SIGNAL PROCESSOR (LSI)
R198 330K
C143 0.01
C190 0.01
R595 680
R105 33K
R107 220K
R108 100K
C129 0.01
E102 10/16
C191 100P
R197 470
R194 1K
R195 1K
(D OUT)
(A OUT)
(BCK)
(EMPH)
(CKO)
(LOCK)
(F CONT)
(PD CNT)
(FEO)
(RFRP)
(V REF)
(RFI)
(+5V)
(-5V)
C101 0.1
R582 2.2K
C108 0.01
C105 3300P
C106 3300P
R190 47K
R114 220K
R192 10K
R115 10K
R113 1K
R116 47K
C107 100P
R117 2.2M
R118 33K
C109 0.01
C110 0.01
IC109 SC7SU04F
INVERTER
E118 10/16
E126 10/16
R196 1K
Q804 DTC124K
R531 18K
C508 470P
R532 10K
BUS OUTPUT DATA CONTROL
Q501 2SC2412K
VOLTAGE CONTROL
Q803 DTA124
R542 22K
C801 0.1
E802 10/16
C805 820P
R805 10K
E801 1000/16
Q511 2SD1664
LSI CONTROL (FOR-5V)
R561 10K
L801
C10 30P
SWITCHING REGULATOR CONTROL
REFERENCE VOLTAGE
TRIANGLE WAVE OSC.
ERROR AMP1
S.C.P. COMP
PWM COMP 1
PWM COMP 2
ERROR AMP2
C803 0.047
C802 0.047
LATCH
U.V.L.O
D.T.C. COMP
IC801 MB3775
R802 1K
R803 3.9K
C807 0.1
R804 33K
C806 0.1
R801 33K
R806 330-1/4
Q802 2SB1261
R809 330 1/4
R808 470 1/4
R807 470-1/4
Q801 2SB1261
D802 FC805
L802 220μH
L803 220μH
E804 220/10
R810 1.6K
R811 4.7K
E803 220/10
SWITCHING

A B C D E F G H


IC109
Q509
Q510
IC504
Q512
Q503
Q501
Q804
Q502
Q513
Q803
Q505
IC503
IC801
Q506
Q507
IC505
Q511
Q802
Q801
Q508
Q504
Switch P. C. Board
CB505
S101 EJECT SWITCH
(EJECT)
(+5V)
(DATA GND)
(RESET)
(IGN SW)
(24)
(25)
IC504 M62007FP
C509 0.047
μ-COM SYSTEM RESET
RESET SIGNAL PRODUCE BLOCK
SQUEEZING SIGNAL PRODUCE BLOCK
R540 1K
D506 DAN202K
E808 330/6.3
Q505 DTA124
ACC DETECTOR
D507 DAN202K
R538 1K
R539 470K
E506 4.7/35
Q506 2SC2412K
D803 MA151WA
V.STABILIZER
Q507 2SD874A
C808 0.1
E807 10/16
R550 4.7K
E510 47/16
ZD502 RD6.2-MB2
R815 10K
D804 DAN202K
BA801
C530 0.1
BUS RESET /μ-COM WATCH DOG
R529 470K
C507 100P
E511 10/16
IC505 HD74HC00FP
R551 47K
R535 10K
D505 MA151WK
R536 47K
E504 10/16
RESET DRIVER
Q508 DTA124
Q504 DTC124K
D503 DAN202K
R537 3.3K 1/4
ZD501 HZS5.6NB2
(DATA GND)
(MUTE)
(19)
(28)
R562 1K-1/4
R530 10K
(-5V)
E502 10/16
(LSI CONT)
R812 4.7
(MUTE)
(+5V)
R528 1M
C506 0.047
E503 10/16
Q509 DTC124K
Q512 DTA124
LSI CONTROL (FOR -5V)
Q513 DTC124K
C524 0.01
(BATT SW)
C523 0.01
(18)
LSI CONTROL (FOR +5V)
Q510 2SB1132
(35)
R541 47K
R563 1.8K
Q503 DTA144
D504 DAN202K
Q502 DTC144K
BUS INPUT DATA CONTROL
(W OUT)
(21)
R527 680K
C505 0.047
IC503 MC14538BFEL
ENABLE
VREF2
VREF1
OUTPUT LATCH
CONTROL
RESET LATCH
BUS RESET DETECTOR
WATCH DOG DETECTOR
RD8.2MB2
ZD503
(DATA GND)
(29)
(+5V)
R533 22K
D502 DAN202K
(DATA GND)
(-5V)
R582 2.2K
(BATT SW)
(W OUT)
R572 220
LSI CONTROL (FOR-5V)
CB103
GND
GND
BATT
BATT
ACC
DATA
-5V
MUTE
A OUT
D OUT
BCK
CHCK
CKO
EMPH
BATT
DOUT SW
+5V
-5V
GND
GND
+5V
TO AUDIO P.C. BOARD
C101 0.1
(+5V)
(+5V)
(DATA)
(EMPH)
(37)
R531 18K
C508 470P
BUS OUTPUT DATA CONTROL
R197 470
R194 1K
R195 1K
(D OUT)
(A OUT)
(BCK)
R532 10K
Q501 2SC2412K
Q803 DTA124
R542 22K
C801 0.1
E802 10/16
C805 820P
R805 10K
E801 1000/16
Q511 2SD1664
L801
C510 390P
R561 10K
SWITCHING REGULATOR CONTROL
REFERENCE VOLTAGE
TRIANGLE WAVE OSC.
ERROR AMP1
S.C.P. COMP
PWM COMP 1
PWM COMP 2
ERROR AMP2
LATCH
U.V.L.O
D.T.C. COMP
C803 0.047
C802 0.047
IC801 MB3775
R806 330-1/4
Q802 2SB1261
R809 330 1/4
D802 FC805
L802 220μH
E804 220/10
R808 470 1/4
R810 1.6K
E803 220/10
R811 4.7K
R807 470-1/4
Q801 2SB1261
L803 220μH
SWITCHING
R801 33K
VOLTAGE CONTROL
(21)
(CHCK)
IC109 SC7SU04F
VDD
Vss
R196 1K
INVERTER
Q804 DTC124K
R802 1K
R803 3.9K
C807 0.1
R804 33K
C806 0.1
E118 10/16
E126 10/16
R118 33K
(-5V)
(+5V)

IC101

1	5.1V	17	PS	33	2V	49	2.1V	65	0V
2	5.1V	18	PS	34	2.1V	50	2.4V	66	0V
3	2.4V	19	PS	35	2.1V	51	2.3V	67	0V
4	1.7V	20	1.7V	36	2.1V	52	2.1V	68	0V
5	PS	21	5V	37	5.1V	53	2.5V	69	0V
6	2.4V	22	0V	38	2.1V	54	0V	70	2.6V
7	0.1V	23	0.1V	39	2.1V	55	2.5V	71	2.6V
8	PS	24	0V	40	2.4V	56	2.5V	72	2.5V
9	5.1V	25	5.1V	41	4.2V	57	2.5V	73	0V
10	2.4V	26	5.1V	42	5.1V	58	5.1V	74	5.1V
11	2.4V	27	5.1V	43	2.5V	59	5.1V	75	0V
12	5.1V	28	2.1V	44	2.5V	60	2V	76	5.1V
13	0V	29	2.1V	45	2.1V	61	2.1V	77	5.1V
14	PS	30	2.1V	46	2.1V	62	2.1V	78	0V
15	PS	31	0.3V	47	2.1V	63	2.3V	79	5.1V
16	PS	32	2.1V	48	2.1V	64	1.9V	80	2.2V

IC109

1	0V
2	2.5V
3	0V
4	2.6V
5	5.1V

IC501

1	0V	17	0V	33	0.1V	49	5V
2	0V	18	5V	34	0V	50	5V
3	0V	19	0V	35	0V	51	5V
4	0V	20	0V	36	5.1V	52	5V
5	0V	21	5V	37	PS	53	5V
6	5V	22	0V	38	5V	54	5V
7	5V	23	0V	39	PS	55	5V
8	2.7V	24	0V	40	PS	56	5V
9	2.6V	25	5.2V	41	0V	57	PS
10	5V	26	0V	42	0V	58	5V
11	5V	27	4.8V	43	5.1V	59	0V
12	PS	28	5V	44	0V	60	0V
13	0V	29	PS	45	PS	61	0V
14	0V	30	0V	46	PS	62	0V
15	0V	31	5V	47	PS	63	0V
16	0V	32	0.14V	48	PS	64	0V

IC504

1	5V
2	5V
3	5V
4	0V
5	0V
6	0V
7	0V
8	5V

IC502

1	5V	9	5V	17	5V
2	0V	10	5V	18	0V
3	0V	11	5V	19	0V
4	0V	12	0V	20	5V
5	0V	13	5V	21	5V
6	0V	14	5V	22	5V
7	0V	15	5V	23	0V
8	0V	16	5V	24	5V

IC503

1	0V	9	0V
2	5V	10	0V
3	5V	11	PS
4	0V	12	0V
5	5V	13	5V
6	5V	14	5V
7	5V	15	0V
8	0V	16	5V

IC505

1	0V	8	0V
2	0V	9	PS
3	5.2V	10	5.2V
4	5.2V	11	5.2V
5	0V	12	5V
6	5.2V	13	0V
7	0V	14	5.2V

IC801

1	5V	9	5V
2	0V	10	PS
3	0V	11	5V
4	0V	12	0V
5	0V	13	1.3V
6	0V	14	1.3V
7	PS	15	0V
8	0V	16	1.3V

	E	C	B
Q101	2.1V	2.1V	0V
Q114	0V	PS	PS
Q115	5.1V	0V	5.1V
Q116	2.1V	2.1V	4.9V
Q501	0V	PS	PS
Q502	0V	PS	PS
Q503	5.2V	PS	PS
Q504	0V	5V	0V
Q505	5.2V	5.1V	0V
Q506	0V	0V	0.6V
Q507	5.8V	13.1V	0V
Q508	5.2V	0V	5.2V
Q509	0V	0.1V	5V
Q510	5.2V	5.1V	4.4V
Q511	−5V	−4.9V	−4.3V
Q512	1.4V	−2.3V	0V
Q513	0V	0V	5V
Q801	13.7V	5.3V	13.3V
Q802	13.7V	0.1V	13.4V
Q803	13.6V	13.6V	0V
Q804	0V	0V	5V

(Measuring Conditions)

1.Power Supply Voltage :DC14V
2.Measuring Meter :Digital Multi Volt Meter
3.Measuring Point Reference :Between Ground
4.Measuring Conditions :Test Disc Play (A-BEX TCD-782 Track NO.2 1KHz)
Digital Output Switch (OFF)

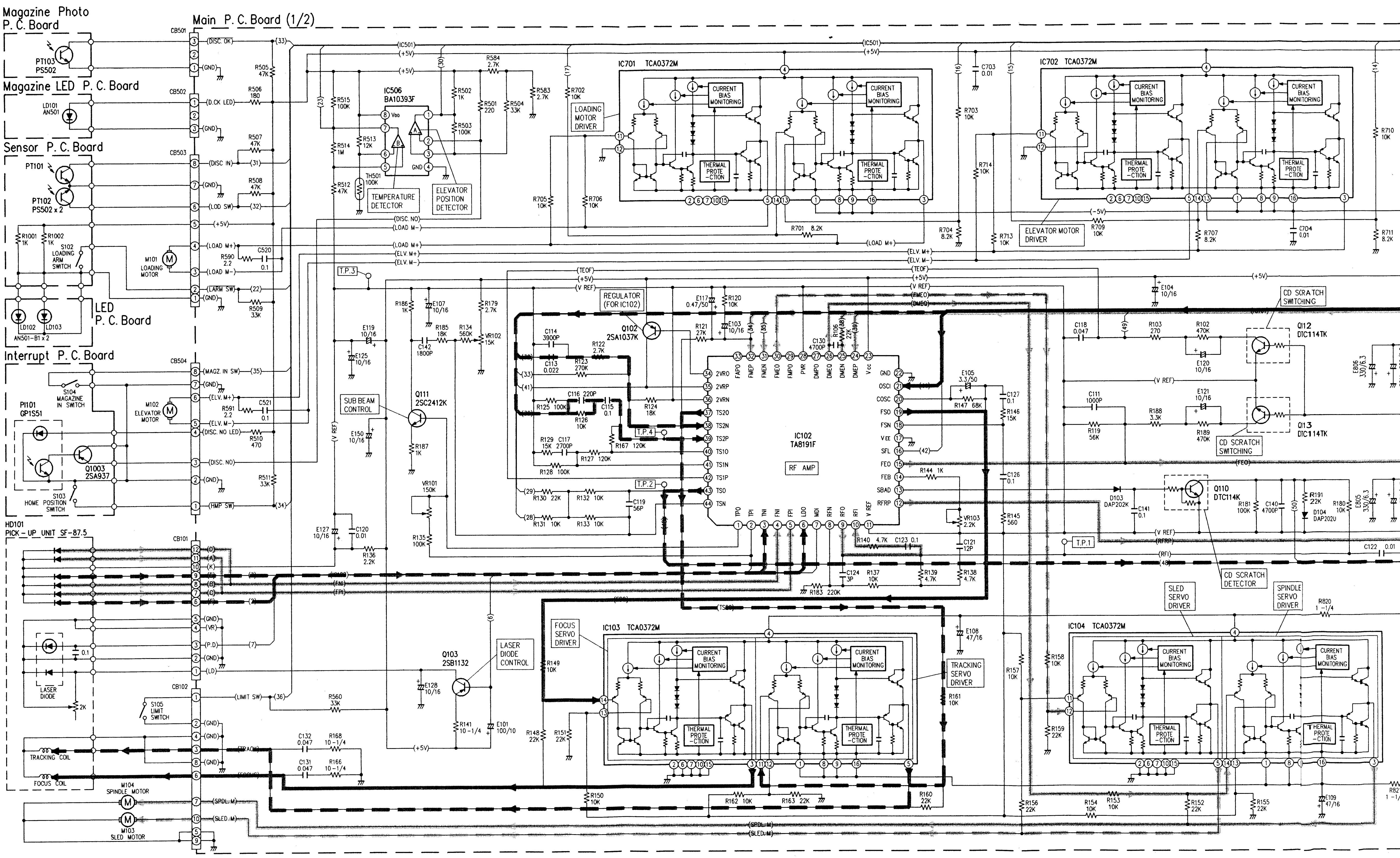
▨	CD Signal Line (Digital)
▬	Focus Servo Signal Line
▬ ▬	Tracking Servo Signal Line
▨	Spindle Servo Signal Line
▬ ▬	Sled Servo Signal Line

NOTES:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1,000,000}$

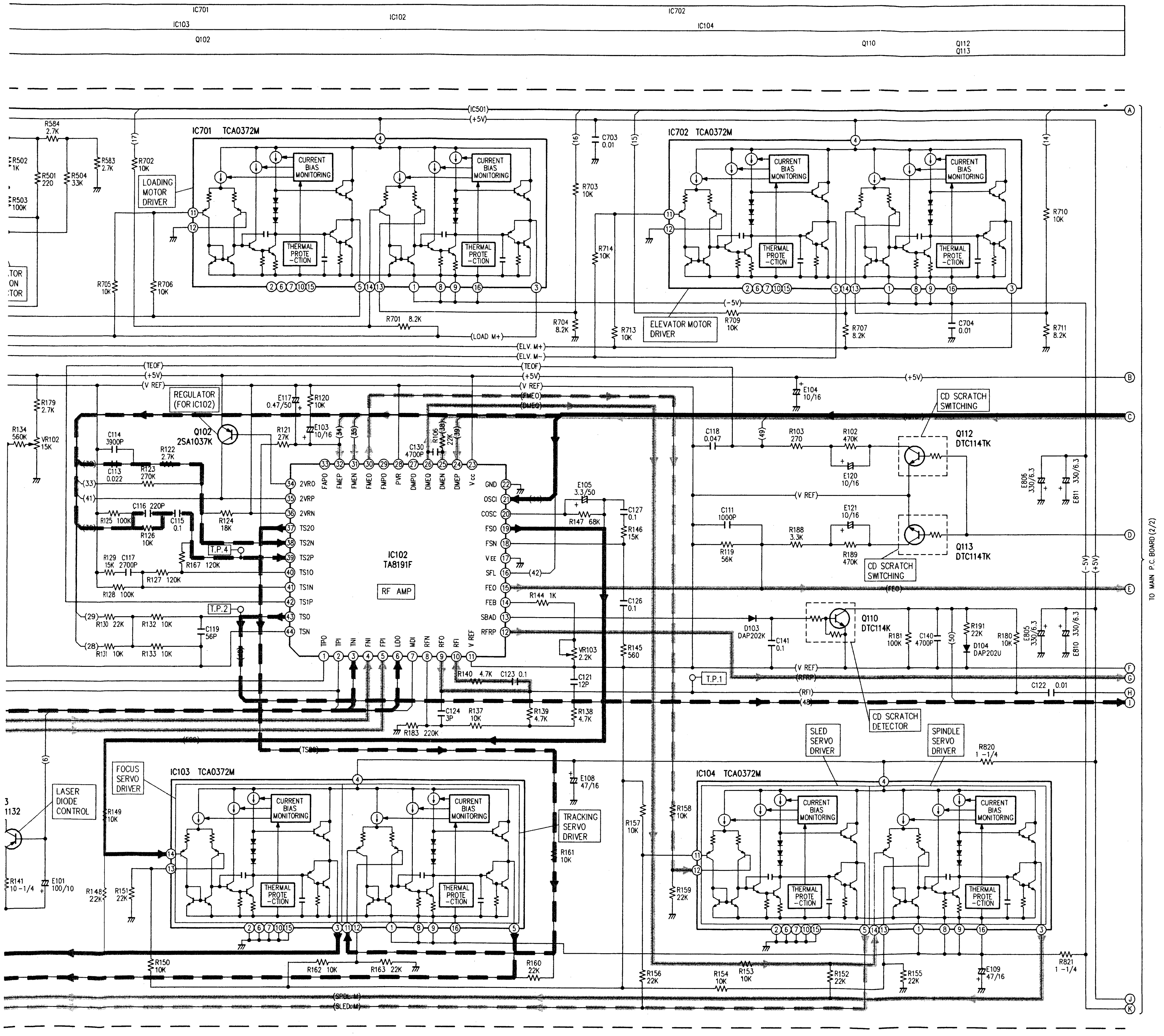
Schematic Diagram (1/3)

IC	IC506	IC701	IC103	IC102	IC702	IC104
Transistor(Q),(PT)	PI101 Q1003 PT103 PT101 PT102	Q111 Q103	Q102		Q110	Q112 Q113



Magazine Photo P.C. Board
PT103 PS502
Magazine LED P.C. Board
LD101 AN501
Sensor P.C. Board
PT101
PT102 PS502 x 2
R1001 1K
R1002 1K
S102 LOADING ARM SWITCH
M101 LOADING MOTOR
LED P.C. Board
LD102 LD103
AN501-B1 x 2
Interrupt P.C. Board
S104 MAGAZINE IN SWITCH
M102 ELEVATOR MOTOR
PI101 GP1S51
Q1003 2SA937
S103 HOME POSITION SWITCH
HD101 PICK-UP UNIT SF-87.5
LASER DIODE
S105 LIMIT SWITCH
TRACKING COIL
FOCUS COIL
M104 SPINDLE MOTOR
M103 SLED MOTOR
Main P.C. Board (1/2)
CB501 CB502 CB503 CB504 CB101 CB102
(DISC OK) (D.CK LED) (DISC IN) (LOD SW) (LOAD M+) (LOAD M-) (LARM SW) (MAGZ. IN SW) (ELV. M+) (ELV. M-) (DISC. NO LED) (DISC. NO) (HMP SW) (LIMIT SW) (SPDL. M) (SLED. M) (TRACK) (FOCUS) (P.D) (LD) (VR) (GND) (+5V)
IC506 BA10393F
TEMPERATURE DETECTOR
ELEVATOR POSITION DETECTOR
TH501 100K
IC701 TCA0372M
LOADING MOTOR DRIVER
CURRENT BIAS MONITORING
THERMAL PROTE-CTION
IC702 TCA0372M
ELEVATOR MOTOR DRIVER
REGULATOR (FOR IC102)
Q102 2SA1037K
Q111 2SC2412K
SUB BEAM CONTROL
Q103 2SB1132
LASER DIODE CONTROL
IC102 TA8191F
RF AMP
T.P.1 T.P.2 T.P.3 T.P.4
IC103 TCA0372M
FOCUS SERVO DRIVER
TRACKING SERVO DRIVER
IC104 TCA0372M
SLED SERVO DRIVER
SPINDLE SERVO DRIVER
Q112 DTC114TK
Q113 DTC114TK
CD SCRATCH SWITCHING
Q110 DTC114K
CD SCRATCH DETECTOR
D103 DAP202K
D104 DAP202U
VR101 150K
VR102 15K
VR103 2.2K

1
2
3
4
5
A
B
C
D
E
F
G
H


IC701
IC103
IC102
IC702
IC104
Q102
Q110
Q112
Q113
IC701 TCA0372M
IC702 TCA0372M
CURRENT BIAS MONITORING
THERMAL PROTE -CTION
LOADING MOTOR DRIVER
ELEVATOR MOTOR DRIVER
(IC501)
(+5V)
(LOAD M+)
(ELV. M+)
(ELV. M-)
(TEOF)
(+5V)
(V REF)
(FMEO)
(DMEO)
REGULATOR (FOR IC102)
Q102 2SA1037K
IC102 TA8191F
RF AMP
2VRO
2VRP
2VRN
TS2O
TS2N
TS2P
TS1O
TS1N
TS1P
TSO
TSN
FAPO
FMEP
FMEN
FMEO
FMPO
PVR
DMPO
DMEO
DMEN
DMEP
Vcc
GND
OSCI
COSC
FSO
FSN
VEE
SFL
FEO
FEB
SBAD
RFRP
TPO
TPI
TNI
FNI
FPI
LDO
MDI
RFN
RFO
RFI
V REF
T.P.1
T.P.2
T.P.4
CD SCRATCH SWITCHING
Q112 DTC114TK
Q113 DTC114TK
Q110 DTC114K
CD SCRATCH DETECTOR
D103 DAP202K
D104 DAP202U
(RFRP)
(RFI)
(48)
(FEO)
(TS20)
(FEO)
FOCUS SERVO DRIVER
LASER DIODE CONTROL
IC103 TCA0372M
TRACKING SERVO DRIVER
SLED SERVO DRIVER
SPINDLE SERVO DRIVER
IC104 TCA0372M
(SPDL M)
(SLED M)
(-5V)
(+5V)
TO MAIN P.C. BOARD (2/2)
A
B
C
D
E
F
G
H
I
J
K

IC102

1	1.8V	11	2.1V	21	2.5V	31	2.1V	41	2.1V
2	2.1V	12	2.3V	22	0V	32	2.1V	42	2.1V
3	2.1V	13	2.4V	23	5.1V	33	2.1V	43	2.1V
4	2.1V	14	2.1V	24	2.2V	34	4.5V	44	2.1V
5	2.1V	15	2.1V	25	2.2V	35	4.2V		
6	PS	16	5.1V	26	PS	36	2.1V		
7	PS	17	0V	27	PS	37	2.1V		
8	PS	18	2.1V	28	2.1V	38	2.1V		
9	PS	19	2.1V	29	PS	39	2.1V		
10	PS	20	2.1V	30	PS	40	2.1V		

IC103

1	−5V	9	−5V
2	0V	10	0V
3	PS	11	0V
4	5.1V	12	0V
5	PS	13	1.5V
6	0V	14	1.5V
7	0V	15	0V
8	−5V	16	0V

IC104

1	−5V	9	−5V
2	0V	10	0V
3	PS	11	1.5V
4	5.1V	12	PS
5	PS	13	0V
6	0V	14	1.5V
7	0V	15	0V
8	−5V	16	0.2V

IC506

1	0V
2	5.1V
3	1.6V
4	0V
5	2V
6	5V
7	0V
8	5.1V

IC701

1	0.2V	9	0.2V
2	0V	10	0V
3	0.7V	11	0.7V
4	1.3V	12	0V
5	0.7V	13	0V
6	0V	14	0.4V
7	0V	15	0V
8	0.2V	16	0.2V

IC702

1	−5V	9	0.2V
2	0V	10	0V
3	0.7V	11	0.7V
4	1.2V	12	0V
5	0.7V	13	0V
6	0V	14	0.4V
7	0V	15	0V
8	0.2V	16	0.2V

	E	C	B
Q102	5.1V	4.2V	4.5V
Q103	5.1V	0V	4.7V
Q110	2.1V	2.4V	2.2V
Q111	1.2V	1.2V	1.8V
Q112	2.1V	2.1V	0V
Q113	2.1V	2.1V	0V

(Measuring Conditions)

1.Power Supply Voltage :DC14V
2.Measuring Meter :Digital Multi Volt Meter
3.Measuring Point Reference :Between Ground
4.Measuring Conditions :Test Disc Play (A-BEX TCD-782 Track NO.2 1KHz)
Digital Output Switch (OFF)

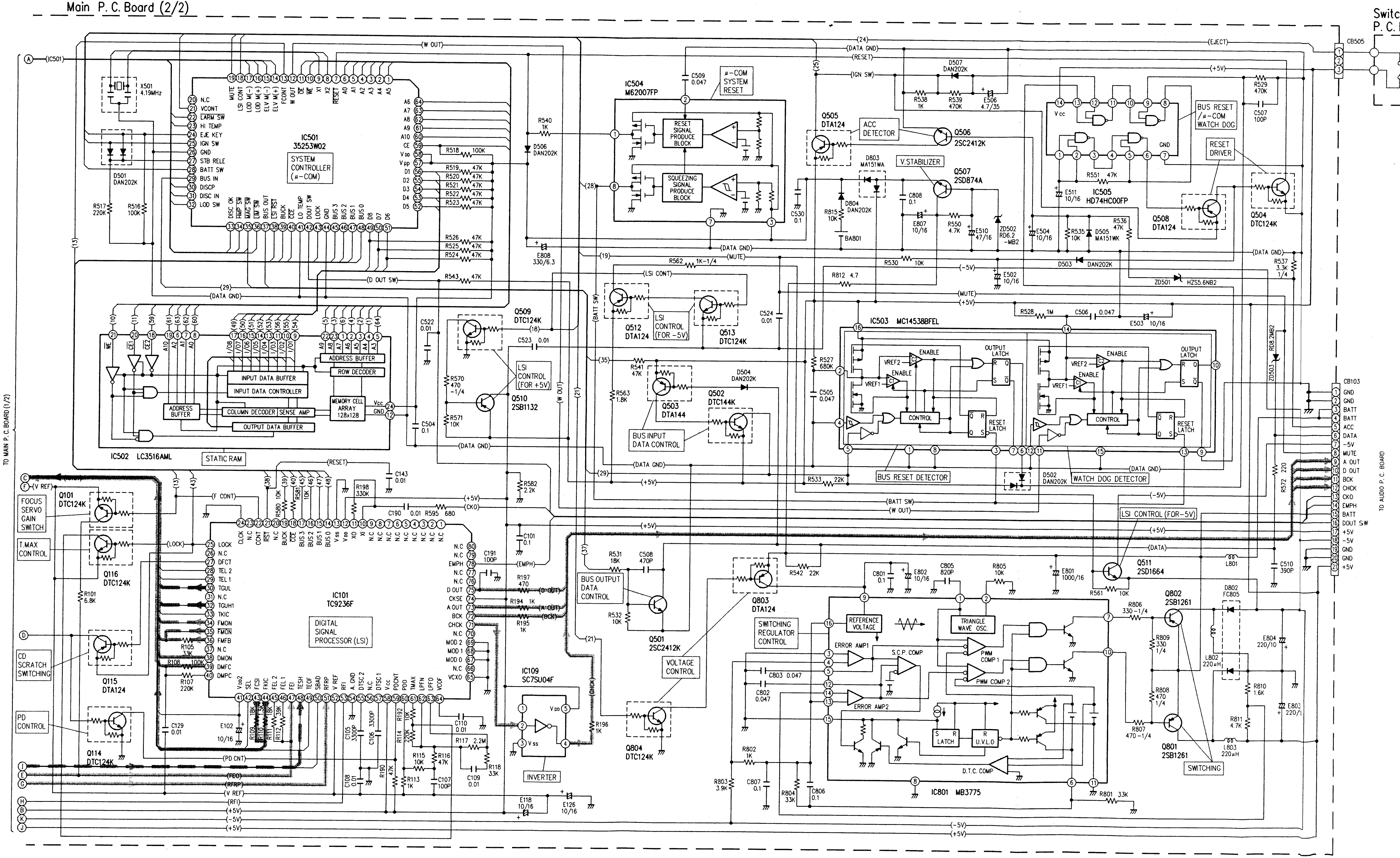
▨ CD Signal Line (Digital)
━ Focus Servo Signal Line
╍ Tracking Servo Signal Line
▨ Spindle Servo Signal Line
┅ Sled Servo Signal Line

NOTES:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1,000,000}$

Schematic Diagram (2/3)

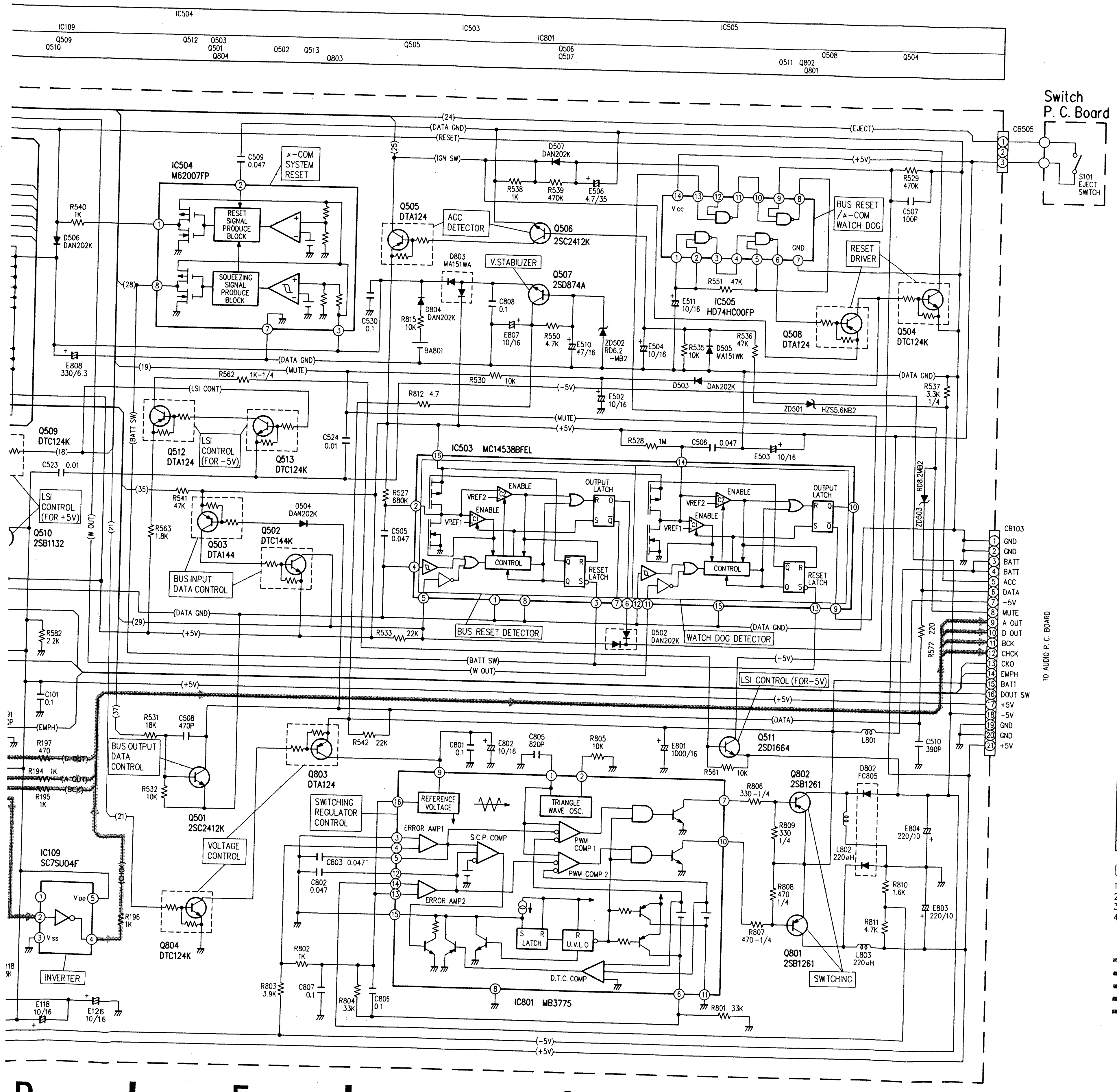
IC	IC502	IC501 IC101	IC109	IC504	IC503	IC801	IC505
Transistor (Q)	Q101 Q116 Q114 Q115	Q509 Q510	Q512 Q503 Q501 Q804	Q502 Q513 Q803	Q505	Q506 Q507	Q511 Q802 Q508 Q801 Q504



Main P. C. Board (2/2)
Switch P. C.
IC501 35253W02 SYSTEM CONTROLLER (μ-COM)
X501 4.19MHz
D501 DAN202K
IC502 LC3516AML
STATIC RAM
ADDRESS BUFFER
INPUT DATA BUFFER
INPUT DATA CONTROLLER
ROW DECODER
MEMORY CELL ARRAY 128x128
COLUMN DECODER
SENSE AMP
OUTPUT DATA BUFFER
IC504 M62007FP
μ-COM SYSTEM RESET
RESET SIGNAL PRODUCE BLOCK
SQUEEZING SIGNAL PRODUCE BLOCK
Q505 DTA124
ACC DETECTOR
Q506 2SC2412K
V.STABILIZER
Q507 2SD874A
BUS RESET /μ-COM WATCH DOG
IC505 HD74HC00FP
RESET DRIVER
Q508 DTA124
Q504 DTC124K
Q509 DTC124K
Q510 2SB1132
LSI CONTROL (FOR +5V)
Q512 DTA124
Q513 DTC124K
LSI CONTROL (FOR -5V)
Q503 DTA144
Q502 DTC144K
BUS INPUT DATA CONTROL
IC503 MC14538BFEL
BUS RESET DETECTOR
WATCH DOG DETECTOR
LSI CONTROL (FOR-5V)
Q101 DTC124K
FOCUS SERVO GAIN SWITCH
Q116 DTC124K
T.MAX CONTROL
Q115 DTA124
CD SCRATCH SWITCHING
Q114 DTC124K
PD CONTROL
IC101 TC9236F
DIGITAL SIGNAL PROCESSOR (LSI)
IC109 SC7SU04F
INVERTER
BUS OUTPUT DATA CONTROL
Q501 2SC2412K
VOLTAGE CONTROL
Q804 DTC124K
Q803 DTA124
Q511 2SD1664
SWITCHING REGULATOR CONTROL
REFERENCE VOLTAGE
TRIANGLE WAVE OSC.
ERROR AMP1
ERROR AMP2
S.C.P. COMP
PWM COMP 1
PWM COMP 2
LATCH
U.V.L.O
D.T.C. COMP
IC801 MB3775
Q802 2SB1261
Q801 2SB1261
SWITCHING
CB505
CB103
TO MAIN P. C. BOARD (1/2)
TO AUDIO P. C. BOARD
1 GND
2 GND
3 BATT
4 BATT
5 ACC
6 DATA
7 -5V
8 MUTE
9 A OUT
10 D OUT
11 BCK
12 CHCK
13 CKO
14 EMPH
15 BATT
16 DOUT SW
17 +5V
18 -5V
19 GND
20 GND
21 +5V

1 2 3 4 5

A | B | C | D | E | F | G | H


Switch P.C. Board
CB505
S101 EJECT SWITCH
IC504 M62007FP
μ-COM SYSTEM RESET
RESET SIGNAL PRODUCE BLOCK
SQUEEZING SIGNAL PRODUCE BLOCK
Q505 DTA124
ACC DETECTOR
Q506 2SC2412K
V.STABILIZER
Q507 2SD874A
D803 MA151WA
D507 DAN202K
IC505 HD74HC00FP
BUS RESET / μ-COM WATCH DOG
RESET DRIVER
Q508 DTA124
Q504 DTC124K
Q509 DTC124K
Q512 DTA124
LSI CONTROL (FOR -5V)
Q513 DTC124K
LSI CONTROL (FOR +5V)
Q510 2SB1132
Q503 DTA144
Q502 DTC144K
BUS INPUT DATA CONTROL
IC503 MC14538BFEL
ENABLE
OUTPUT LATCH
CONTROL
RESET LATCH
BUS RESET DETECTOR
WATCH DOG DETECTOR
D502 DAN202K
LSI CONTROL (FOR-5V)
Q511 2SD1664
CB103
GND
GND
BATT
BATT
ACC
DATA
-5V
MUTE
A OUT
D OUT
BCK
CHCK
CKO
EMPH
BATT
DOUT SW
+5V
-5V
GND
GND
+5V
TO AUDIO P.C. BOARD
BUS OUTPUT DATA CONTROL
Q501 2SC2412K
Q803 DTA124
VOLTAGE CONTROL
Q804 DTC124K
IC109 SC7SU04F
INVERTER
SWITCHING REGULATOR CONTROL
REFERENCE VOLTAGE
TRIANGLE WAVE OSC.
ERROR AMP1
S.C.P. COMP
PWM COMP 1
PWM COMP 2
ERROR AMP2
S R LATCH
R U.V.L.O
D.T.C. COMP
IC801 MB3775
Q802 2SB1261
Q801 2SB1261
D802 FC805
L802 220μH
L803 220μH
SWITCHING

IC101

1	5.1V	17	PS	33	2V	49	2.1V	65	0V
2	5.1V	18	PS	34	2.1V	50	2.4V	66	0V
3	2.4V	19	PS	35	2.1V	51	2.3V	67	0V
4	1.7V	20	1.7V	36	2.1V	52	2.1V	68	0V
5	PS	21	5V	37	5.1V	53	2.5V	69	0V
6	2.4V	22	0V	38	2.1V	54	0V	70	2.6V
7	0.1V	23	0.1V	39	2.1V	55	2.5V	71	2.6V
8	PS	24	0V	40	2.4V	56	2.5V	72	2.5V
9	5.1V	25	5.1V	41	4.2V	57	2.5V	73	0V
10	2.4V	26	5.1V	42	5.1V	58	5.1V	74	5.1V
11	2.4V	27	5.1V	43	2.5V	59	5.1V	75	0V
12	5.1V	28	2.1V	44	2.5V	60	2V	76	5.1V
13	0V	29	2.1V	45	2.1V	61	2.1V	77	5.1V
14	PS	30	2.1V	46	2.1V	62	2.1V	78	0V
15	PS	31	0.3V	47	2.1V	63	2.3V	79	5.1V
16	PS	32	2.1V	48	2.1V	64	1.9V	80	2.2V

IC109

1	0V
2	2.5V
3	0V
4	2.6V
5	5.1V

IC501

1	0V	17	0V	33	0.1V	49	5V
2	0V	18	5V	34	0V	50	5V
3	0V	19	0V	35	0V	51	5V
4	0V	20	0V	36	5.1V	52	5V
5	0V	21	5V	37	PS	53	5V
6	5V	22	0V	38	5V	54	5V
7	5V	23	0V	39	PS	55	5V
8	2.7V	24	0V	40	PS	56	5V
9	2.6V	25	5.2V	41	0V	57	PS
10	5V	26	0V	42	0V	58	5V
11	5V	27	4.8V	43	5.1V	59	0V
12	PS	28	5V	44	0V	60	0V
13	0V	29	PS	45	PS	61	0V
14	0V	30	0V	46	PS	62	0V
15	0V	31	5V	47	PS	63	0V
16	0V	32	0.14V	48	PS	64	0V

IC504

1	5V
2	5V
3	5V
4	0V
5	0V
6	0V
7	0V
8	5V

IC502

1	5V	9	5V	17	5V
2	0V	10	5V	18	0V
3	0V	11	5V	19	0V
4	0V	12	0V	20	5V
5	0V	13	5V	21	5V
6	0V	14	5V	22	5V
7	0V	15	5V	23	0V
8	0V	16	5V	24	5V

IC503

1	0V	9	0V
2	5V	10	0V
3	5V	11	PS
4	0V	12	0V
5	5V	13	5V
6	5V	14	5V
7	5V	15	0V
8	0V	16	5V

IC505

1	0V	8	0V
2	0V	9	PS
3	5.2V	10	5.2V
4	5.2V	11	5.2V
5	0V	12	5V
6	5.2V	13	0V
7	0V	14	5.2V

IC801

1	5V	9	5V
2	0V	10	PS
3	0V	11	5V
4	0V	12	0V
5	0V	13	1.3V
6	0V	14	1.3V
7	PS	15	0V
8	0V	16	1.3V

	E	C	B
Q101	2.1V	2.1V	0V
Q114	0V	PS	PS
Q115	5.1V	0V	5.1V
Q116	2.1V	2.1V	4.9V
Q501	0V	PS	PS
Q502	0V	PS	PS
Q503	5.2V	PS	PS
Q504	0V	5V	0V
Q505	5.2V	5.1V	0V
Q506	0V	0V	0.6V
Q507	5.8V	13.1V	0V
Q508	5.2V	0V	5.2V
Q509	0V	0.1V	5V
Q510	5.2V	5.1V	4.4V
Q511	−5V	−4.9V	−4.3V
Q512	1.4V	−2.3V	0V
Q513	0V	0V	5V
Q801	13.7V	5.3V	13.3V
Q802	13.7V	0.1V	13.4V
Q803	13.6V	13.6V	0V
Q804	0V	0V	5V

(Measuring Conditions)

1.Power Supply Voltage : DC14V
2.Measuring Meter : Digital Multi Volt Meter
3.Measuring Point Reference : Between Ground
4.Measuring Conditions : Test Disc Play (A−BEX TCD−782 Track NO.2 1KHz)
Digital Output Switch (OFF)

▬▬ CD Signal Line (Digital)
▬▬ Focus Servo Signal Line
▬ ▬ Tracking Servo Signal Line
▬▬ Spindle Servo Signal Line
▬ ▬ Sled Servo Signal Line

NOTES:

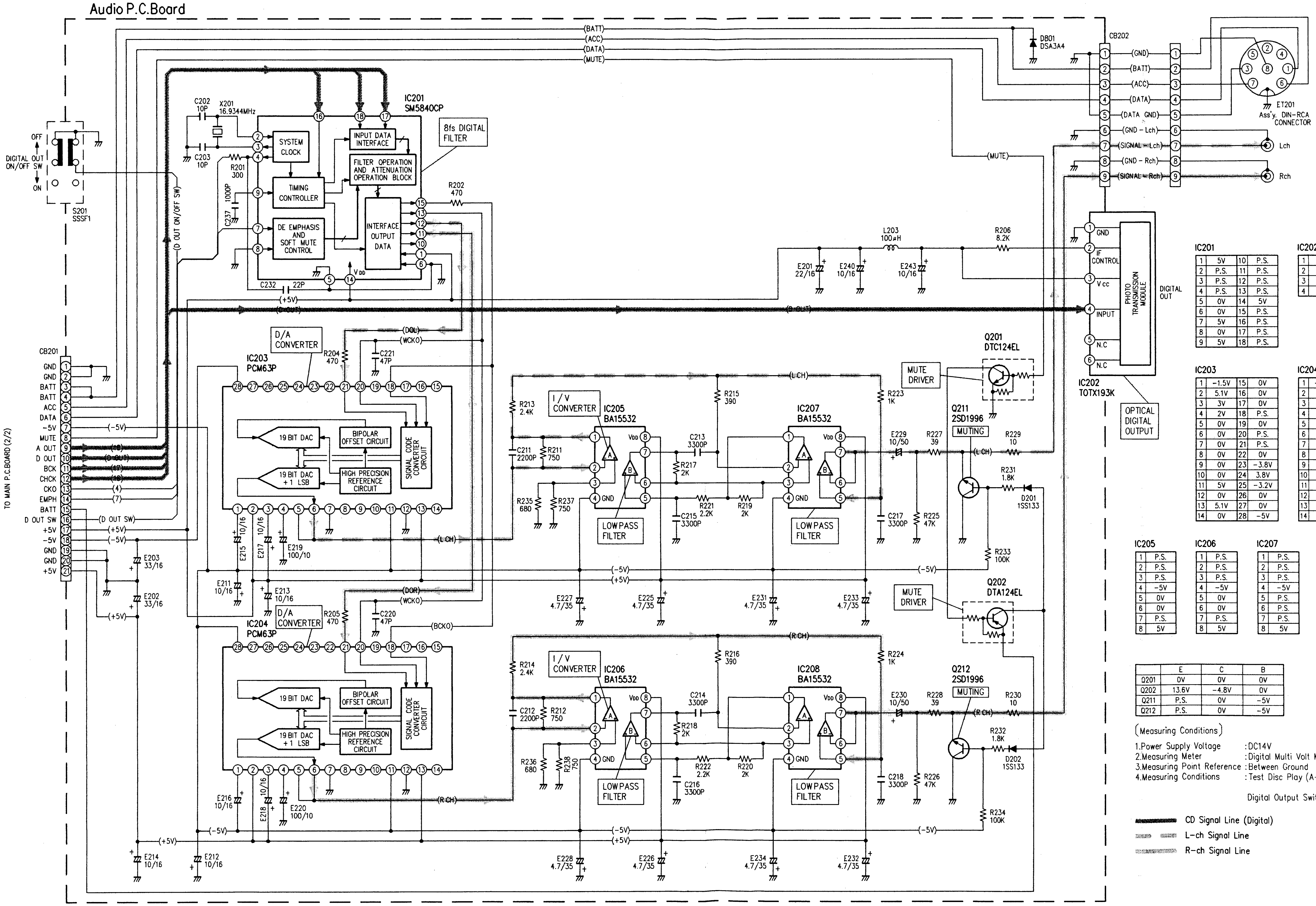
1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1{,}000{,}000}$

Schematic Diagram (3/3)

IC	IC203 IC204	IC201	IC205 IC206	IC207 IC208	IC202
Transistor(Q)				Q211 Q212	Q201 Q202

NOTES:
1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1,000,000}$

Audio P.C.Board


Audio P.C.Board
(BATT)
(ACC)
(DATA)
(MUTE)
D801 DSA3A4
CB202
(GND)
(BATT)
(ACC)
(DATA)
(DATA GND)
(GND - Lch)
(SIGNAL - Lch)
(GND - Rch)
(SIGNAL - Rch)
ET201 Ass'y. DIN-RCA CONNECTOR
Lch
Rch
OFF
ON
DIGITAL OUT ON/OFF SW
S201 SSSF1
(D OUT ON/OFF SW)
C202 10P
X201 16.9344MHz
C203 10P
R201 300
1000P
C237
IC201 SM5840CP
SYSTEM CLOCK
INPUT DATA INTERFACE
FILTER OPERATION AND ATTENUATION OPERATION BLOCK
TIMING CONTROLLER
DE EMPHASIS AND SOFT MUTE CONTROL
INTERFACE OUTPUT DATA
8fs DIGITAL FILTER
VDD
C232 22P
R202 470
(+5V)
(D OUT)
L203 100μH
R206 8.2K
E201 22/16
E240 10/16
E243 10/16
GND
IF CONTROL
Vcc
INPUT
N.C
PHOTO TRANSMISSION MODULE
DIGITAL OUT
IC202 TOTX193K
OPTICAL DIGITAL OUTPUT
(MUTE)
CB201
GND
GND
BATT
BATT
ACC
DATA
-5V
MUTE
A OUT
D OUT
BCK
CHCK
CKO
EMPH
BATT
D OUT SW
+5V
-5V
GND
GND
+5V
TO MAIN P.C.BOARD (2/2)
(-5V)
(D OUT SW)
(+5V)
(-5V)
E203 33/16
E202 33/16
D/A CONVERTER
IC203 PCM63P
R204 470
C221 47P
(DOL)
(WCKO)
19 BIT DAC
19 BIT DAC +1 LSB
BIPOLAR OFFSET CIRCUIT
HIGH PRECISION REFERENCE CIRCUIT
SIGNAL CODE CONVERTER CIRCUIT
E215 10/16
E217 10/16
E219 100/10
(L CH)
E211 10/16
E213 10/16
D/A CONVERTER
IC204 PCM63P
R205 470
C220 47P
(DOR)
(WCKO)
(BCKO)
E216 10/16
E218 10/16
E220 100/10
(R CH)
E214 10/16
E212 10/16
R213 2.4K
I/V CONVERTER
IC205 BA15532
C211 2200P
R211 750
R235 680
R237 750
LOW PASS FILTER
R215 390
C213 3300P
R217 2K
C215 3300P
R221 2.2K
R219 2K
IC207 BA15532
R223 1K
C217 3300P
R225 47K
E227 4.7/35
E225 4.7/35
E231 4.7/35
E233 4.7/35
MUTE DRIVER
Q201 DTC124EL
Q211 2SD1996
MUTING
E229 10/50
R227 39
R229 10
R231 1.8K
D201 1SS133
R233 100K
MUTE DRIVER
Q202 DTA124EL
R214 2.4K
I/V CONVERTER
IC206 BA15532
C212 2200P
R212 750
R236 680
R238 750
R216 390
C214 3300P
R218 2K
C216 3300P
R222 2.2K
R220 2K
IC208 BA15532
R224 1K
C218 3300P
R226 47K
Q212 2SD1996
MUTING
E230 10/50
R228 39
R230 10
R232 1.8K
D202 1SS133
R234 100K
E228 4.7/35
E226 4.7/35
E234 4.7/35
E232 4.7/35
(-5V)
(+5V)

IC201

1	5V	10	P.S.
2	P.S.	11	P.S.
3	P.S.	12	P.S.
4	P.S.	13	P.S.
5	0V	14	5V
6	0V	15	P.S.
7	5V	16	P.S.
8	0V	17	P.S.
9	5V	18	P.S.

IC202

1	0V
2	2.2V
3	4.9V
4	PS

IC203

1	−1.5V	15	0V
2	5.1V	16	0V
3	3V	17	0V
4	2V	18	P.S.
5	0V	19	0V
6	0V	20	P.S.
7	0V	21	P.S.
8	0V	22	0V
9	0V	23	−3.8V
10	0V	24	3.8V
11	5V	25	−3.2V
12	0V	26	0V
13	5.1V	27	0V
14	0V	28	−5V

IC204

1	−1.5V	15	0V
2	5.1V	16	0V
3	3V	17	0V
4	2V	18	P.S.
5	0V	19	0V
6	0V	20	P.S.
7	0V	21	P.S.
8	0V	22	0V
9	0V	23	−3.8V
10	0V	24	3.8V
11	−5V	25	−3.2V
12	0V	26	0V
13	5.1V	27	0V
14	0V	28	−5V

IC205

1	P.S.
2	P.S.
3	P.S.
4	−5V
5	0V
6	0V
7	P.S.
8	5V

IC206

1	P.S.
2	P.S.
3	P.S.
4	−5V
5	0V
6	0V
7	P.S.
8	5V

IC207

1	P.S.
2	P.S.
3	P.S.
4	−5V
5	P.S.
6	P.S.
7	P.S.
8	5V

IC208

1	P.S.
2	P.S.
3	P.S.
4	−5V
5	P.S.
6	P.S.
7	P.S.
8	5V

	E	C	B
Q201	0V	0V	0V
Q202	13.6V	−4.8V	0V
Q211	P.S.	0V	−5V
Q212	P.S.	0V	−5V

(Measuring Conditions)

1.Power Supply Voltage	:DC14V
2.Measuring Meter	:Digital Multi Volt Meter
3.Measuring Point Reference	:Between Ground
4.Measuring Conditions	:Test Disc Play (A-BEX TCD-782 Track NO.2 1KHz) Digital Output Switch (OFF)

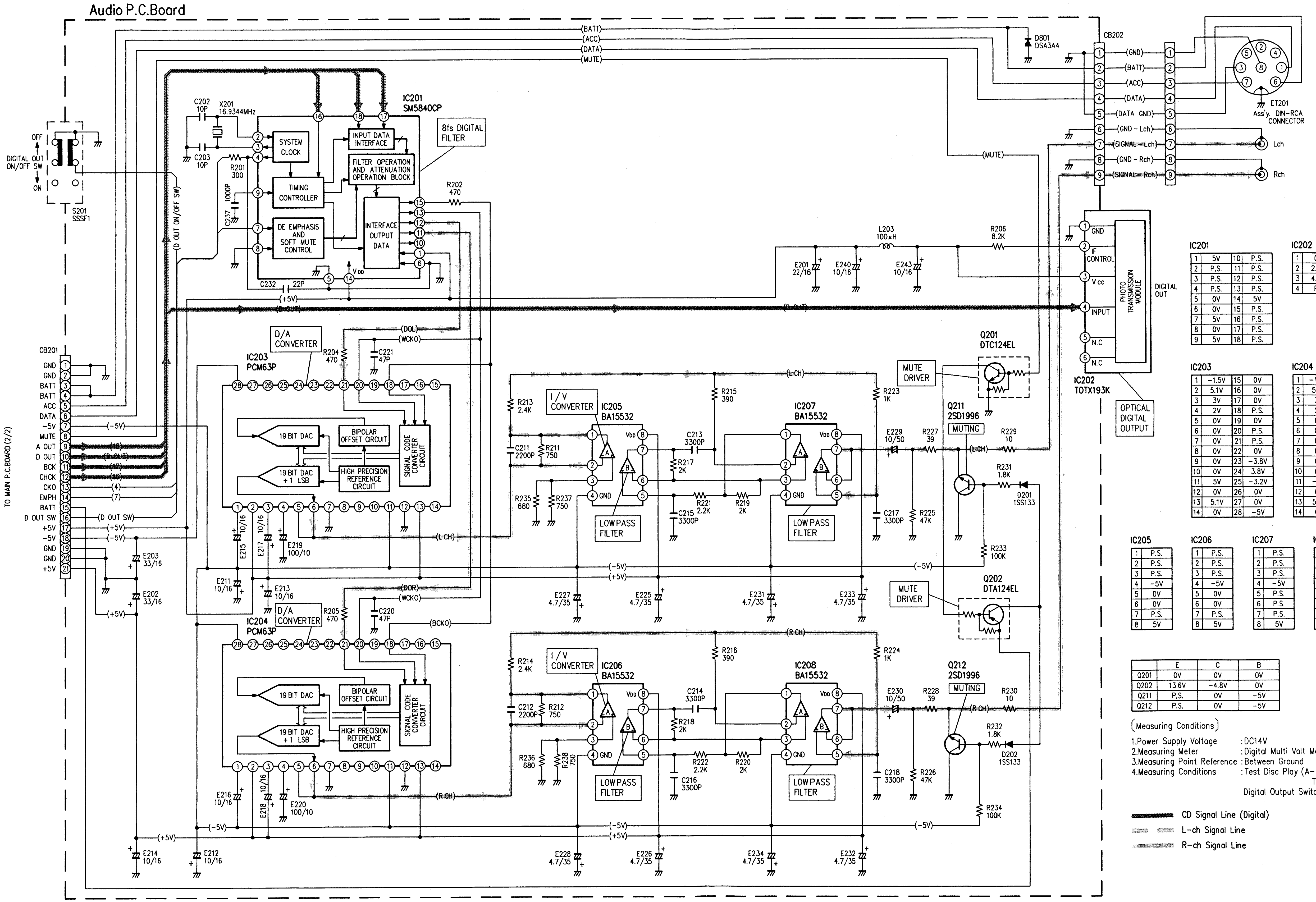
▬	CD Signal Line (Digital)
▬ ▬	L-ch Signal Line
▬	R-ch Signal Line

Schematic Diagram (3/3)

IC	IC203 IC204	IC201	IC205 IC206	IC207 IC208			IC202
Transistor(Q)					Q211 Q212	Q201 Q202	

NOTES:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1,000,000}$


Audio P.C.Board
OFF
ON
DIGITAL OUT ON/OFF SW
S201 SSSF1
C202 10P
X201 16.9344MHz
C203 10P
R201 300
1000P
C237
IC201 SM5840CP
SYSTEM CLOCK
TIMING CONTROLLER
DE EMPHASIS AND SOFT MUTE CONTROL
INPUT DATA INTERFACE
FILTER OPERATION AND ATTENUATION OPERATION BLOCK
INTERFACE OUTPUT DATA
8fs DIGITAL FILTER
V DD
R202 470
C232 22P
(+5V)
(D OUT)
(D OUT ON/OFF SW)
(BATT)
(ACC)
(DATA)
(MUTE)
D801 DSA3A4
CB202
(GND)
(BATT)
(ACC)
(DATA)
(DATA GND)
(GND - Lch)
(SIGNAL - Lch)
(GND - Rch)
(SIGNAL - Rch)
ET201 Ass'y. DIN-RCA CONNECTOR
Lch
Rch
L203 100µH
R206 8.2K
E201 22/16
E240 10/16
E243 10/16
GND
IF CONTROL
Vcc
INPUT
N.C
N.C
PHOTO TRANSMISSION MODULE
DIGITAL OUT
IC202 TOTX193K
OPTICAL DIGITAL OUTPUT
CB201
GND
GND
BATT
BATT
ACC
DATA
-5V
MUTE
A OUT
D OUT
BCK
CHCK
CKO
EMPH
BATT
D OUT SW
+5V
-5V
GND
GND
+5V
TO MAIN P.C.BOARD (2/2)
(-5V)
(18)
(D OUT)
(17)
(16)
(4)
(7)
(D OUT SW)
(+5V)
(-5V)
E203 33/16
E202 33/16
(+5V)
D/A CONVERTER
IC203 PCM63P
R204 470
(DOL)
(WCKO)
C221 47P
19 BIT DAC
19 BIT DAC +1 LSB
BIPOLAR OFFSET CIRCUIT
HIGH PRECISION REFERENCE CIRCUIT
SIGNAL CODE CONVERTER CIRCUIT
E215 10/16
E217 10/16
E219 100/10
(L CH)
E211 10/16
E213 10/16
D/A CONVERTER
IC204 PCM63P
R205 470
(DOR)
(WCKO)
C220 47P
(BCKO)
E216 10/16
E218 10/16
E220 100/10
(R CH)
E214 10/16
E212 10/16
(+5V)
(-5V)
R213 2.4K
C211 2200P
R211 750
R235 680
R237 750
I/V CONVERTER
IC205 BA15532
VDD
GND
LOW PASS FILTER
R215 390
C213 3300P
R217 2K
C215 3300P
R221 2.2K
R219 2K
IC207 BA15532
LOW PASS FILTER
R223 1K
C217 3300P
R225 47K
E227 4.7/35
E225 4.7/35
E231 4.7/35
E233 4.7/35
MUTE DRIVER
Q201 DTC124EL
Q211 2SD1996
MUTING
E229 10/50
R227 39
R229 10
R231 1.8K
D201 1SS133
R233 100K
MUTE DRIVER
Q202 DTA124EL
R214 2.4K
C212 2200P
R212 750
R236 680
R238 750
I/V CONVERTER
IC206 BA15532
LOW PASS FILTER
R216 390
C214 3300P
R218 2K
C216 3300P
R222 2.2K
R220 2K
IC208 BA15532
LOW PASS FILTER
R224 1K
C218 3300P
R226 47K
E228 4.7/35
E226 4.7/35
E234 4.7/35
E232 4.7/35
Q212 2SD1996
MUTING
E230 10/50
R228 39
R230 10
R232 1.8K
D202 1SS133
R234 100K

IC201

1	5V	10	P.S.
2	P.S.	11	P.S.
3	P.S.	12	P.S.
4	P.S.	13	P.S.
5	0V	14	5V
6	0V	15	P.S.
7	5V	16	P.S.
8	0V	17	P.S.
9	5V	18	P.S.

IC202

1	0V
2	2.2V
3	4.9V
4	PS

IC203

1	-1.5V	15	0V
2	5.1V	16	0V
3	3V	17	0V
4	2V	18	P.S.
5	0V	19	0V
6	0V	20	P.S.
7	0V	21	P.S.
8	0V	22	0V
9	0V	23	-3.8V
10	0V	24	3.8V
11	5V	25	-3.2V
12	0V	26	0V
13	5.1V	27	0V
14	0V	28	-5V

IC204

1	-1.5V	15	0V
2	5.1V	16	0V
3	3V	17	0V
4	2V	18	P.S.
5	0V	19	0V
6	0V	20	P.S.
7	0V	21	P.S.
8	0V	22	0V
9	0V	23	-3.8V
10	0V	24	3.8V
11	-5V	25	-3.2V
12	0V	26	0V
13	5.1V	27	0V
14	0V	28	-5V

IC205

1	P.S.
2	P.S.
3	P.S.
4	-5V
5	0V
6	0V
7	P.S.
8	5V

IC206

1	P.S.
2	P.S.
3	P.S.
4	-5V
5	0V
6	0V
7	P.S.
8	5V

IC207

1	P.S.
2	P.S.
3	P.S.
4	-5V
5	P.S.
6	P.S.
7	P.S.
8	5V

IC208

1	P.S.
2	P.S.
3	P.S.
4	-5V
5	P.S.
6	P.S.
7	P.S.
8	5V

	E	C	B
Q201	0V	0V	0V
Q202	13.6V	-4.8V	0V
Q211	P.S.	0V	-5V
Q212	P.S.	0V	-5V

(Measuring Conditions)

1.Power Supply Voltage :DC14V
2.Measuring Meter :Digital Multi Volt Meter
3.Measuring Point Reference :Between Ground
4.Measuring Conditions :Test Disc Play (A-BEX TCD-782 Track NO.2 1KHz)
Digital Output Switch (OFF)

▬ CD Signal Line (Digital)
▨ L-ch Signal Line
▨ R-ch Signal Line

Electrical Parts List

Resistor : Carbon resistors under 1/4 watts are not mentioned in the parts list, please confirm them by schematic diagram.
Capacitor : μF = microfarads, pF = picofarads

Abbreviations

RES. =	Resistor	CAP. =	Capacitor
C.F. =	Carbon Film	ELY. =	Electrolytic
M.F. =	Metal Film	CER. =	Ceramic
M.O. =	Metal Oxide Film	MYL. =	Mylar
M.P. =	Metal Plate	TAN. =	Tantalum
TR. =	Transistor	POLY. =	Polystyrol
TRANS. =	Transformer	PP. =	Polypropylene
CP. =	Chip	PLT. =	Polyethylene
		PF. =	Polyester Film

Main P. C. Board

IC's

Symbol No.	Part No.	Description
IC101	51T25985W01	TC9236F
IC102	51T25984W01	TA8191F
IC103	51T15264W01	TCA0372M
IC104	51T15264W01	TCA0372M
IC109	51T45285W01	SC7SU04F
IC501	51T35253W02	35253W02
IC502	51T84723F02	LC3516AML
or	51T90640F01	CXK5816M
IC503	51T25370W01	MC14538BFEL
IC504	51T35308W01	M62007FP
IC505	51T90277F10	HD74HC00FP
or	51T25904W03	MC74HC00AFL1
IC506	51T73285F01	BA10393F
IC701	51T15264W01	TCA0372M
IC702	51T15264W01	TCA0372M
IC801	51T35309W01	MB3775

Transistors

Symbol No.	Part No.	Description
Q101	48T62967F03	CP., DTC124K
Q102	48T63420F01	CP., 2SA1037K
Q103	48T80611F01	CP., 2SB1132
Q110	48T62967F02	CP., DTC114K
Q111	48T63417F01	CP., 2SC2412K
Q112	48T62967F09	CP., DTC114TK
Q113	48T62967F09	CP., DTC114TK
Q114	48T62967F03	CP., DTC124K
Q115	48T62966F03	CP., DTA124
Q116	48T62967F03	CP., DTC124K
Q501	48T63417F01	CP., 2SC2412K
Q502	48T62967F04	CP., DTC144K
Q503	48T62966F04	CP., DTA144
Q504	48T62967F03	CP., DTC124K
Q505	48T62966F03	CP., DTA124
Q506	48T63417F01	CP., 2SC2412K
Q507	48T73023F01	2SD874A
Q508	48T62966F03	CP., DTA124
Q509	48T62967F03	CP., DTC124K
Q510	48T80611F01	CP., 2SB1132
Q511	48T80614F01	CP., 2SD1664
Q512	48T62966F03	CP., DTA124
Q513	48T62967F03	CP., DTC124K
Q801	48T15511W02	CP., 2SB1261
Q802	48T15511W02	CP., 2SB1261
Q803	48T62966F03	CP., DTA124
Q804	48T62967F03	CP., DTC124K

Diodes

Symbol No.	Part No.	Description
D103	48T63463F01	CP., DAP202K
D104	48T94608F02	CP., DAP202U
D501	48T63462F01	CP., DAN202K
D502	48T63462F01	CP., DAN202K
D503	48T63462F01	CP., DAN202K
D504	48T63462F01	CP., DAN202K
D505	48T52446F01	CP., MA151WK
D506	48T63462F01	CP., DAN202K
D507	48T63462F01	CP., DAN202K
D802	48T35310W01	CP., FC805
D803	48T52445F01	CP., MA151WA
D804	48T63462F01	CP., DAN202K
ZD501	48T90517F27	Zener, HZS5.6NB2
ZD502	48T62934F25	Zener, CP. RD6.2MB2
ZD503	48T62934F34	Zener, CP. RD8.2MB2

Coils

Symbol No.	Part No.	Description
L801	25T52199F01	Choke
L802	24T16271W13	220μH
L803	24T16271W13	220μH

Thermistor / Crystal

Symbol No.	Part No.	Description
TH501	48T93439F06	Thermistor, 100K ohm
X501	91T15285W01	CER., Lock 4.19MHz

Symbol No.	Part No.	Description
Capacitors		
C101	08S65128F76	CP., 0.1μF
E101	23T25149W13	ELY., 100μF / 10V
E102	23T25149W09	ELY., 10μF / 16V
E103	23T25149W09	ELY., 10μF / 16V
E104	23T74437F32	TAN., 10μF / 16V
C105	08S65128F63	CP., 3300pF
E105	23T25149W07	ELY., 3.3μF / 50V
C106	08S65128F63	CP., 3300pF
C107	08S65128F35	CP., 100pF
E107	23T74437F32	TAN., 10μF / 16V
C108	08S65128F69	CP., 0.01μF
E108	23T25149W12	ELY., 47μF / 16V
C109	08S65128F69	CP., 0.01μF
E109	23T25149W12	ELY., 47μF / 16V
C110	08S65128F69	CP., 0.01μF
C111	08S65128F57	CP., 1000pF
C113	08T15399W01	CP., 0.022μF
C114	08S65128F64	CP., 3900pF
C115	08T15807W05	CP., 0.1μF
C116	08S65128F43	CP., 220pF
C117	08S65128F62	CP., 2700pF
E117	23T25149W04	ELY., 0.47μF / 50V
C118	08T15399W03	CP., 0.047μF
E118	23T74437F32	TAN., 10μF / 16V
C119	08S65128F29	CP., 56pF
E119	23T74437F32	TAN., 10μF / 16V
C120	08S65128F69	CP., 0.01μF
E120	23T25149W09	ELY., 10μF / 16V
C121	08S65128F13	CP., 12pF
E121	23T25149W09	ELY., 10μF / 16V
C122	08S53332F47	CP., 0.01μF
C123	08T15807W05	CP., 0.1μF
C124	08S82122F06	CP., 3pF
E125	23T74437F32	TAN., 10μF / 16V
C126	08T15807W05	CP., 0.1μF
E126	23T74437F32	TAN., 10μF / 16V
C127	08T15807W05	CP., 0.1μF
E127	23T25149W09	ELY., 10μF / 16V
E128	23T74437F32	TAN., 10μF / 16V
C129	08S65128F69	CP., 0.01μF
C130	08S65128F65	CP., 4700pF
C131	08T15399W03	CP., 0.047μF
C132	08T15399W03	CP., 0.047μF
C140	08S65128F65	CP., 4700pF
C141	08T15807W05	CP., 0.1μF
C142	08S65128F60	CP., 1800pF
C143	08S65128F69	CP., 0.01μF
E150	23T74437F32	TAN., 10μF / 16V
C190	08S65128F69	CP., 0.01μF
C191	08S65128F35	CP., 100pF
E502	23T25149W09	ELY., 10μF //16V
E503	23T25149W09	ELY., 10μF / 16V
C504	08S53332F57	CP., 0.1μF
E504	23S61523F12	ELY., 10μF / 16V
C505	08T15807W01	CP., 0.047μF
C506	08T15807W01	CP., 0.047μF
E506	23T25149W15	ELY., 4.7μF / 35V
C507	08S65128F35	CP., 100pF
C508	08S65128F51	CP., 470pF
C509	08T15807W01	CP., 0.047μF
C510	08S65128F49	CP., 390pF
E510	23T25149W12	ELY., 47μF / 16V
E511	23T25149W09	ELY., 10μF / 16V
C520	08T15807W05	CP., 0.1μF
C521	08T15807W05	CP., 0.1μF
C522	08S65128F69	CP., 0.01μF
C523	08S65128F69	CP., 0.01μF
C524	08S65128F69	CP., 0.01μF
C703	08S65128F69	CP., 0.01μF
C704	08S65128F69	CP., 0.01μF
C801	08S53332F57	CP., 0.1μF
E801	23T25364W01	ELY., 1000μF / 16V
C802	08T15399W03	CP., 0.047μF
E802	23T74437F32	TAN., 10μF / 16V
C803	08T15399W03	CP., 0.047μF
E803	23S16086W01	ELY., 220μF / 10V
E804	23S16086W01	ELY., 220μF / 10V
C805	08S65128F56	CP., 820pF
E805	23S16086W02	ELY., 330μF / 6.3V
C806	08T15807W05	CP., 0.1μF
E806	23S16086W02	ELY., 330μF / 6.3V
C807	08S53332F57	CP., 0.1μF
E807	23S25149W09	ELY., 10μF / 16V
C808	08S65128F76	CP., 0.1μF
E808	23S16086W02	ELY., 330μF / 6.3V
E810	23S16086W02	ELY., 330μF / 6.3V
E811	23S16086W02	ELY., 330μF / 6.3V
C530	08S65128F76	CP., 0.1μF
Resistors (All resistors are chip 1/10W ± 5% unless otherwise noted.)		
R101	06S64995F73	6.8K ohm
R102	06S64996F18	470K ohm
R103	06S64995F39	270 ohm
R105	06S64995F89	33K ohm
R106	06S64995F85	22K ohm
R107	06S64996F10	220K ohm
R108	06S64996F02	100K ohm
R109	06S64995F83	18K ohm
R110	06S64995F57	1.5K ohm
R111	06S64995F83	18K ohm

Symbol No.	Part No.	Description
R112	06S64995F91	39K ohm
R113	06S64995F53	1K ohm
R114	06S64996F10	220K ohm
R115	06S64995F77	10K ohm
R116	06S64995F93	47K ohm
R117	06S64996F30	2.2M ohm
R118	06S64995F89	33K ohm
R119	06S64995F95	56K ohm
R120	06S64995F77	10K ohm
R121	06S64995F87	27K ohm
R122	06S64995F63	2.7K ohm
R123	06S64996F12	270K ohm
R124	06S64995F83	18K ohm
R125	06S64996F02	100K ohm
R126	06S64995F77	10K ohm
R127	06S64996F04	120K ohm
R128	06S64996F02	100K ohm
R129	06S64995F81	15K ohm
R130	06S64995F85	22K ohm
R131	06S64995F77	10K ohm
R132	06S64995F77	10K ohm
R133	06S64995F77	10K ohm
R134	06S64996F20	560K ohm
R135	06S64996F02	100K ohm
R136	06S64995F61	2.2K ohm
R137	06S64995F77	10K ohm
R138	06S64995F69	4.7K ohm
R139	06S64995F69	4.7K ohm
R140	06S64995F69	4.7K ohm
R141	06T70072F05	10 ohm 1/4W
R144	06S64995F53	1K ohm
R145	06S64995F47	560 ohm
R146	06S64995F81	15K ohm
R147	06S64995F97	68K ohm
R148	06S64995F85	22K ohm
R149	06S64995F77	10K ohm
R150	06S64995F77	10K ohm
R151	06S64995F85	22K ohm
R152	06S64995F85	22K ohm
R153	06S64995F77	10K ohm
R154	06S64995F77	10K ohm
R155	06S64995F85	22K ohm
R156	06S64995F85	22K ohm
R157	06S64995F77	10K ohm
R158	06S64995F77	10K ohm
R159	06S64995F85	22K ohm
R160	06S64995F85	22K ohm
R161	06S64995F77	10K ohm
R162	06S64995F77	10K ohm
R163	06S64995F85	22K ohm
R166	06T70072F05	10 ohm 1/4W
R167	06S64996F04	120K ohm

Symbol No.	Part No.	Description
R168	06T70072F05	10 ohm 1/4W
R179	06S64995F63	2.7K ohm
R180	06S64995F77	10K ohm
R181	06S64996F02	100K ohm
R183	06S64996F10	220K ohm
R185	06S64995F83	18K ohm
R186	06S64995F53	1K ohm
R187	06S64995F53	1K ohm
R188	06S64995F65	3.3K ohm
R189	06S64996F18	470K ohm
R190	06S64995F93	47K ohm
R191	06S64995F85	22K ohm
R192	06S64995F77	10K ohm
R194	06S64995F53	1K ohm
R195	06S64995F53	1K ohm
R196	06S64995F53	1K ohm
R197	06S64995F45	470 ohm
R198	06S64996F14	330K ohm
R501	06S64995F37	220 ohm
R502	06S64995F53	1K ohm
R503	06S64996F02	100K ohm
R504	06S64995F89	33K ohm
R505	06S64995F93	47K ohm
R506	06S64995F35	180 ohm
R507	06S64995F93	47K ohm
R508	06S64995F93	47K ohm
R509	06S64995F89	33K ohm
R510	06S64995F45	470 ohm
R511	06S64995F89	33K ohm
R512	06S64995F93	47K ohm
R513	06S64995F79	12K ohm
R514	06S64996F26	1M ohm
R515	06S64996F02	100K ohm
R516	06S64996F02	100K ohm
R517	06S64996F10	220K ohm
R518	06S64996F02	100K ohm
R519	06S64995F93	47K ohm
R520	06S64995F93	47K ohm
R521	06S64995F93	47K ohm
R522	06S64995F93	47K ohm
R523	06S64995F93	47K ohm
R524	06S64995F93	47K ohm
R525	06S64995F93	47K ohm
R526	06S64995F93	47K ohm
R527	06S64996F22	680K ohm
R528	06S64996F26	1M ohm
R529	06S64996F18	470K ohm
R530	06S64995F77	10K ohm
R531	06S64995F83	18K ohm
R532	06S64995F77	10K ohm
R533	06S64995F85	22K ohm
R535	06S64995F77	10K ohm

Symbol No.	Part No.	Description
R536	06S64995F93	47K ohm
R537	06T70072F65	3.3K ohm 1/4W
R538	06S64995F53	1K ohm
R539	06S64996F18	470K ohm
R540	06S64995F53	1K ohm
R541	06S64995F93	47K ohm
R542	06S64995F85	22K ohm
R543	06S64995F93	47K ohm
R550	06S64995F69	4.7K ohm
R551	06S64995F93	47K ohm
R560	06S64995F89	33K ohm
R561	06S64995F77	10K ohm
R562	06T70072F53	1K ohm 1/4W
R563	06S64995F59	1.8K ohm
R570	06T70072F45	470 ohm 1/4W
R571	06S64995F77	10K ohm
R572	06T70072F37	220 ohm 1/4W
R580	06S64995F77	10K ohm
R581	06S64995F77	10K ohm
R582	06S64995F61	2.2K ohm
R583	06S64995F63	2.7K ohm
R584	06S64995F63	2.7K ohm
R590	06S64996F40	2.2 ohm
R591	06S64996F40	2.2 ohm
R595	06S64995F49	680 ohm
R701	06S64995F75	8.2K ohm
R702	06S64995F77	10K ohm
R703	06S64995F77	10K ohm
R704	06S64995F75	8.2K ohm
R705	06S64995F77	10K ohm
R706	06S64995F77	10K ohm
R707	06S64995F75	8.2K ohm
R709	06S64995F77	10K ohm
R710	06S64995F77	10K ohm
R711	06S64995F75	8.2K ohm
R713	06S64995F77	10K ohm
R714	06S64995F77	10K ohm
R801	06S64995F89	33K ohm
R802	06S64995F53	1K ohm
R803	06S64995F67	3.9K ohm
R804	06S64995F89	33K ohm
R805	06S64995F77	10K ohm
R806	06T70072F41	330 ohm 1/4W
R807	06T70072F45	470 ohm 1/4W
R808	06T70072F45	470 ohm 1/4W
R809	06T70072F41	330 ohm 1/4W
R810	06S64995F58	1.6K ohm
R811	06S64995F69	4.7K ohm
R812	06S64995F01	4.7 ohm
R815	06S64995F77	10K ohm
R820	06T70072F90	1 ohm 1/4W
R821	06T70072F90	1 ohm 1/4W

Symbol No.	Part No.	Description
VR101	18T91059F20	Variable, 150K ohm
VR102	18T94215F14	Variable, 15K ohm
VR103	18T94215F09	Variable, 2.2K ohm

Audio P. C. Board

IC's

IC201	51T35105W01	SM5840CP
IC203	51T35201W01	PCM63P
IC204	51T35201W01	PCM63P
IC205	51T25154W02	BA15532
IC206	51T25154W02	BA15532
IC207	51T25154W02	BA15532
IC208	51T25154W02	BA15532

Transistors

Q201	48T82763F03	DTC124EL
Q202	48T82762F03	DTA124EL
Q211	48T90183F03	2SD1996
Q212	48T90183F03	2SD1996

Diodes

D201	48T68828F01	1SS133
D202	48T68828F01	1SS133
D801	48T68580F02	DSA3A4

Switch

S201	40T25473W02	Slide, SSSF1 (DIGITAL OUT ON/OFF)

Coil / Crystal

L203	24T50508F34	Inductor, 100μH
X201	91T25773W92	Crystal, 16.9344MHz

Capacitors

E201	23T74437F34	TAN.,	22μF / 16V
C202	21C45322G10	CER.,	10pF
E202	23T00181L17	ELY.,	33μF / 16V
C203	21S40655F11	CER.,	10pF

Symbol No.	Part No.	Description
E203	23T00181L17	ELY., 33μF/16V
C211	08T35388W09	TF, 2200pF
E211	23T25149W09	ELY., 10μF/16V
C212	08T35388W09	TF, 2200pF
E212	23T25149W09	ELY., 10μF/16V
C213	08T00152L15	PP., 3300pF
E213	23T25149W09	ELY., 10μF/16V
C214	08T00152L15	PP., 3300pF
E214	23T25149W09	ELY., 10μF/16V
C215	08T00152L15	PP., 3300pF
E215	23T25149W09	ELY., 10μF/16V
C216	08T00152L15	PP., 3300pF
E216	23T25149W09	ELY., 10μF/16V
C217	08T00152L15	PP., 3300pF
E217	23T25149W09	ELY., 10μF/16V
C218	08T00152L15	PP., 3300pF
E218	23T25149W09	ELY., 10μF/16V
E219	23T00181L09	ELY., 100μF/10V
C220	21S40655F19	CER., 47pF
E220	23T00181L09	ELY., 100μF/10V
C221	21S40655F19	CER., 47pF
E225	23T25149W15	ELY., 4.7μF/35V
E226	23T25149W15	ELY., 4.7μF/35V
E227	23T25149W15	ELY., 4.7μF/35V
E228	23T25149W15	ELY., 4.7μF/35V
E229	23T00181L44	ELY., 10μF/50V
E230	23T00181L44	ELY., 10μF/50V
E231	23T25149W15	ELY., 4.7μF/35V
C232	21S40655F15	CER., 22pF
E232	23T25149W15	ELY., 4.7μF/35V
E233	23T25149W15	ELY., 4.7μF/35V
E234	23T25149W15	ELY., 4.7μF/35V
C237	08T52714F01	CER., 1000pF
E240	23T25149W09	ELY., 10μF/16V
E243	23T25149W09	ELY., 10μF/16V

Miscellaneous

Symbol No.	Part No.	Description
BA801	60T91060F01	Battery, LIT. CR2032-HE2
ET201	01T35186W01	Assy., DIN-RCA Connector
HD101	88T15309W01	Pick-Up Unit SF-87.5
IC202	51T45264W01	IC, TOTX193K
LD101	48T16057W01	LED, AN501 (RED)
LD102	48T16057W01	LED, AN501 (RED)
LD103	48T16057W01	LED, AN501 (RED)
M101	59T90879F01	Motor, Load 6V-260mA (LOADING)

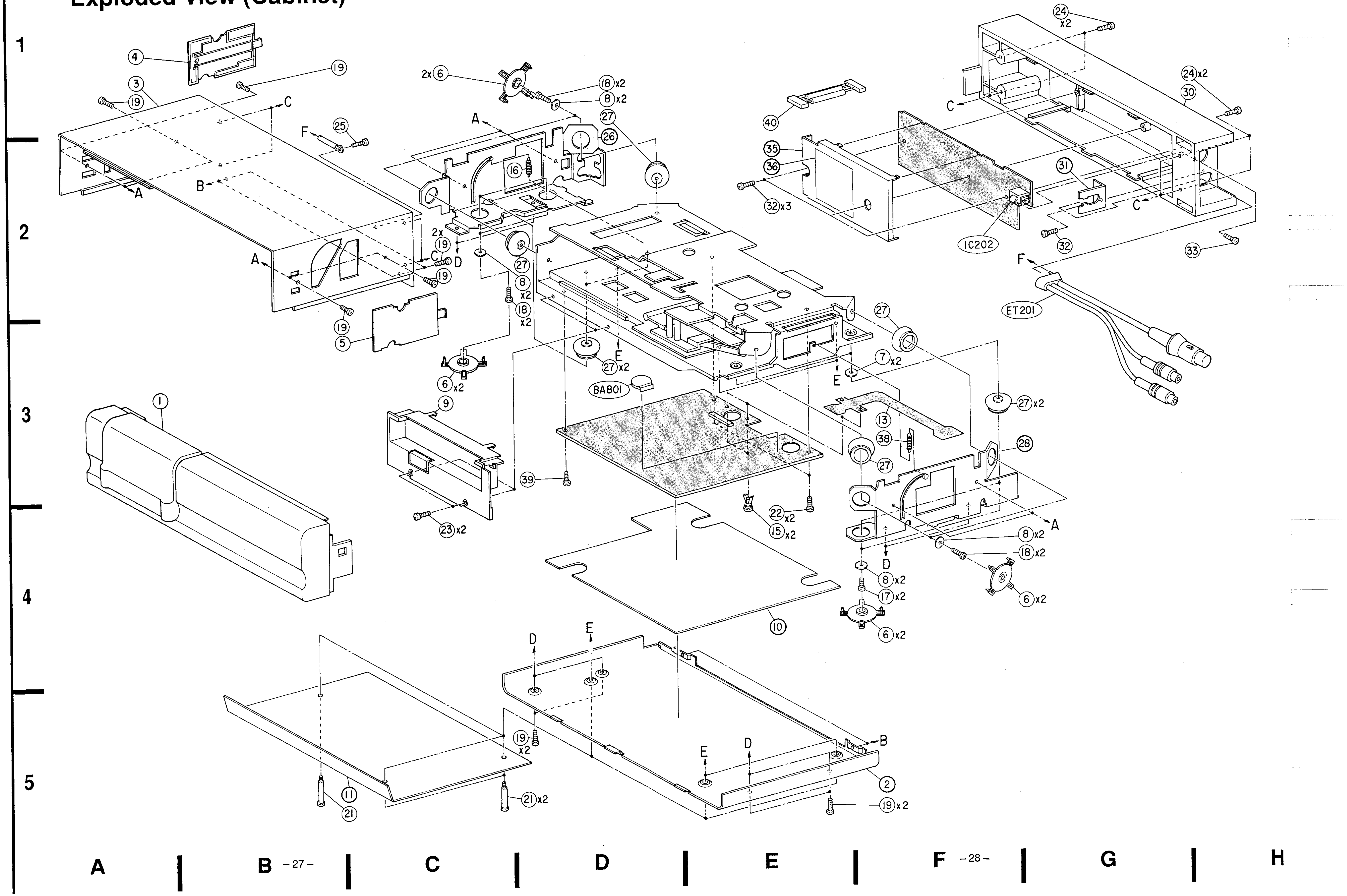
Symbol No.	Part No.	Description
M102	59T15716W01	Motor, Load 8V-85mA (ELEVATOR)
M103	59T52973F03	Motor, Servo 6V-210mA (SLED)
PI101	48T15722W01	Interrupter, Photo GP1S51
PT101	48T15938W03	TR., Photo PS5022-B1
PT102	48T15938W03	TR., Photo PS5022-B1
PT103	48T15938W02	TR., Photo PS502
Q1003	48T51089F04	TR., 2SA937
S101	40T10876W02	Switch, Tact SKHLAJ (EJECT)
S102	40T71025F01	Switch, Detector (LOADING)
S103	40T71025F01	Switch, Detector (HOME)
S104	40T71025F01	Switch, Detector (MAGAZINE)
S105	40T71025F01	Switch, Detector (LIMIT)

Cabinet Assembly Parts List

Note : The parts without parts list are not supplied.

Symbol No.	Index	Part No.	Description
1	3-A	13T35250W02	Assy., Front Escutcheon
3	1-A	15D41083W01	Cover, Top
4	1-A	15B41292W01	Cover, Plate(L)
5	3-B	15B41293W01	Cover, Plate(R)
6		15B40809W01	Holder, Damper (C)
7	3-F	34A48026W01	Washer, Damper
8		04S40075G60	Washer, Polyslider (M3.2)
9	3-C	64B12370W03	Assy., Plate Inner
13	3-F	84T35118W01	Flexible P.C.Board
15	4-E	05B41635J04	Rivet Push
16	2-C	41A41238W01	Spring, Extension (L)
17	4-F	03A48040W02	Screw, Damper (M2.6 x 6)
18		03A48040W01	Screw, Damper (M2.6 x 3)
19		03S38013W12	Screw, Bind (M2.6 x 4)
21		03A48046W01	Screw, Transport (M4 x 22.5)
22	4-E	03S44205G64	Screw, Pan (M2.6 x 6)
23	4-C	03S44205G98	Screw, Pan (M2.6 x 5)
24	1-G	03S40036U11	Screw, Pan (M3 x 8)
25	1-C	03S44205G05	Screw, Pan (M3 x 5)
27		75B48059W01	Damper, DR (D)
30	1-G	15T35177W02	Assy., Cover Rear
32		03S68555F04	Screw, Pan (M2.6 x 6)
33	2-G	03S70494F10	Screw, Pan (M2.6 x 10)
38	3-F	41A41238W02	Spring, Extension (R)
39	3-D	03A38056W01	Screw, Special (M2.6 x 6)
40	1-E	01T45064W01	Assy., Shield Wire

Exploded View (Cabinet)


1
2
3
4
5
④
⑲
③
⑲
C
F
㉕
B
A
A
2x ⑥
⑱x2
⑧x2
㉗
A
㉖
⑯
2x
⑲
C
D
⑲
㉗
⑧
x2
⑱
x2
⑲
⑤
⑥x2
E
㉗x2
BA801
⑨
⑦x2
E
㉗
㉗x2
⑬
㊳
㉘
㉗
㊴
㉓x2
㉒x2
⑮x2
⑧x2
A
⑱x2
D
⑧x2
⑰x2
⑥x2
⑥x2
⑩
①
㉔
x2
㉔x2
㉚
C
㊵
㉟
㊱
㉜x3
㉛
C
IC202
㉜
㉝
F
ET201
D
E
⑲
x2
⑪
㉑
㉑x2
E
D
B
②
⑲x2
A
B
C
D
E
F
G
H

Packing Assembly Parts List

Symbol No.	Part No.	Description
101	56S41054W30	Carton, Packing (Individual)
102	56D30917W04	Tray, Packing (L)
103	56D30917W03	Tray, Packing (R)
104	01V43800W90	Assy., Kit Installation
105	68P40870W59	Owner's Manual
106	01T45053W01	Assy., DIN Connector (5m)
or	01T15904W02	Assy., DIN Connector (5m)
or	01T15904W01	Assy., DIN Connector (5.5m)
or	01T45150W01	Assy., DIN Connector (5m)
107	28T35041W01	Assy., RCA Cabel (5.5m)
108	56C40990T19	Sack, Polyethylene

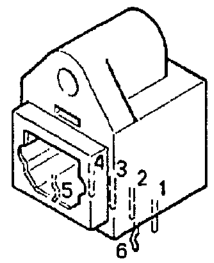
Packing Method View

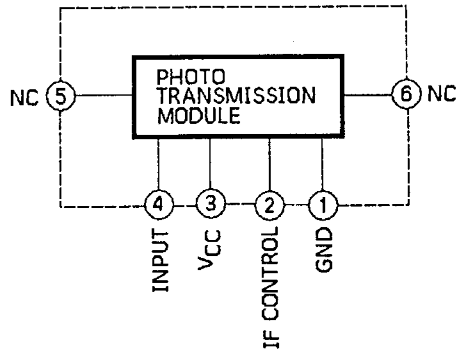
For Packing Method View of this Service Manual, refer to the Service Manual · 5959 (68P32103W02).

Semi-Conductor Lead Identifications

Note : The parts is not mentioned, refer to the Service Manual 5959 (68P32103W02).

TOTX193K : IC202





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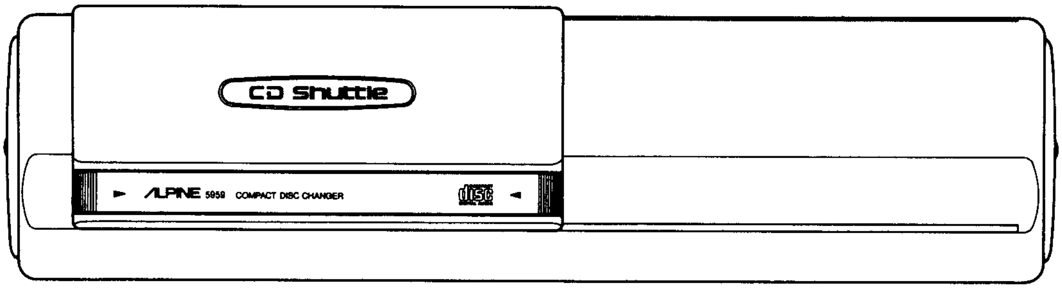
68P41911W01
Printed in Japan

ALPINE SERVICE MANUAL

Compact Disc Remote Changer

CD Shuttle

- For the CD deck mechanism parts (DR24A010) of this model, refer to the DR Series·Service Manual (Part No. 68P30571W01).


CD Shuttle
ALPINE 5959 COMPACT DISC CHANGER

5959

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Spare Schematic Diagram Inserted.

Specifications

<CD SECTION>

System	Optical (Compact Disc System)
Quantizing Bit Number	20Bit Linear System
Channels	2 Channels, Stereo
Distortion (997Hz)	0.006%
Frequency Response (Ref. 1kHz)	17Hz : 0 ± 1dB
	127Hz : 0 ± 1dB
	10.007kHz : 0 ± 1dB
	19.997kHz : 0 ± 2dB
S/N Ratio	100dB
Separation	997Hz : 90dB
	10.007kHz : 80dB
De-Emphasis (Ref. 1kHz)	-20 ± 3dB (4kHz)
	-20 ± 3dB (16kHz)
Currents (at play)	1A

<GENERAL>

Power Supply	14V DC (10.5~16V allowable)
Output Voltage/Impedance	1 ± 0.2V/ 10k ohm
Semiconductors	22 IC's, 25 Transistors, 15 Diodes, 2 Zener Diodes
Dimensions	279 (W) × 71 (H) × 218 (D) mm
Weight	3kg

<COMPACT DISC>

Track Pitch	1.6μm
Modulation Frequency	44.1kHz
Transfer Rate	4.3218Mbit / sec.
Dimensions	120 / 80 × 1.2 mm

NOTE : Due to continuing product improvement, specifications and designs are subject to change without notice.

FEATURES

The 5959 incorporates the latest technology with the following unique functions and features:

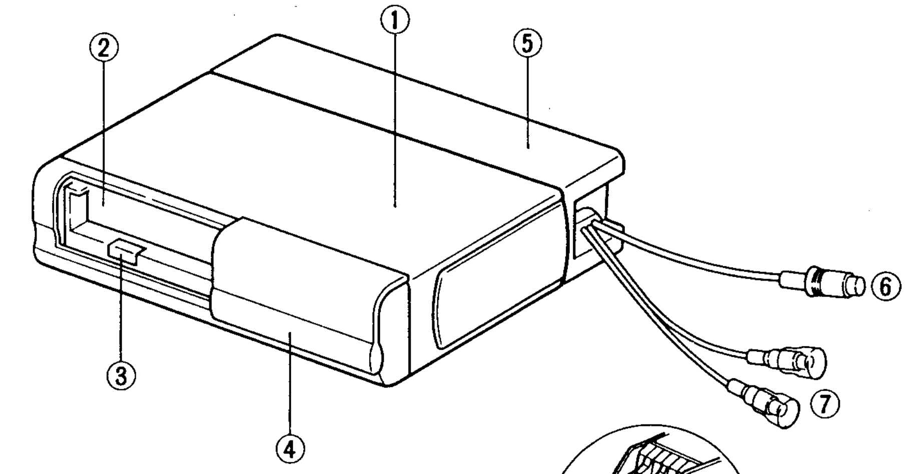
- **CD Shuttle Mounting Versatility**
  The space-saving CD Shuttle can be mounted in a horizontal or vertical position. This allows the installer to choose from a variety of mounting locations including: the trunk, under or behind the seat, or the glove compartment.
- **8X Oversampling**
- **20-bit Sign-Magnitude DAC**
  The Sign-Magnitude method of converting the negative going signals minimizes the zero-cross distortion in the DAC. Using 20-bit technology increases dynamic range and signal-to-noise.
- **High Performance, Dedicated Audio Block**
  By separating the audio section into its own isolated box, we are able to achieve the high level of performance associated with high-grade, home preamplifiers.
- **Interface Options**
  The 5959 CD Shuttle can be used with a 5953 or 5954 controller that allows it to interface with an existing car audio system. It is also fully compatible with Alpine's Shuttle-ready head units with built-in CD changer controls. The 5955 is another controller option which incorporates an FM modulator to allow the CD signal to be played through the FM tuner of an existing system.
- **Magazine Housing 6 CDs**
  Six 5-inch compact discs can be housed in the CD magazine and selected by operating your control unit. You can access any one of the 6 CDs in the magazine quickly and easily for playback of an entire disc or individual selections.

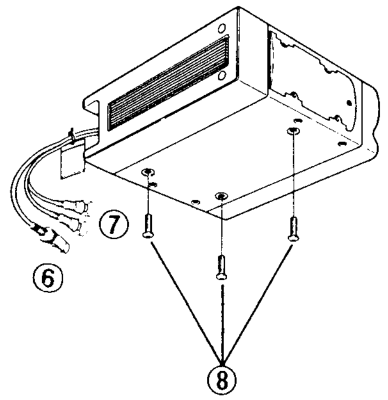
IMPORTANT NOTICE

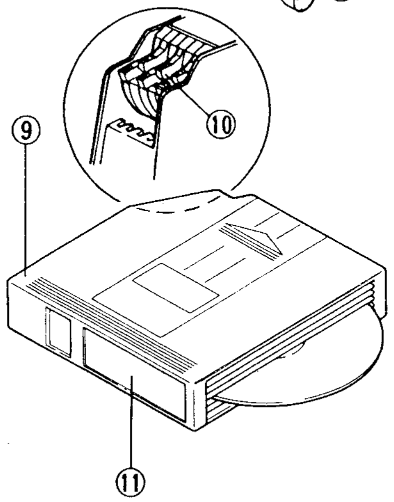
This compact disc Shuttle has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules. This equipment generates and uses radio frequency energy, and it must be installed and used properly in accordance with the manufacturer's instructions.

PARTS IDENTIFICATION

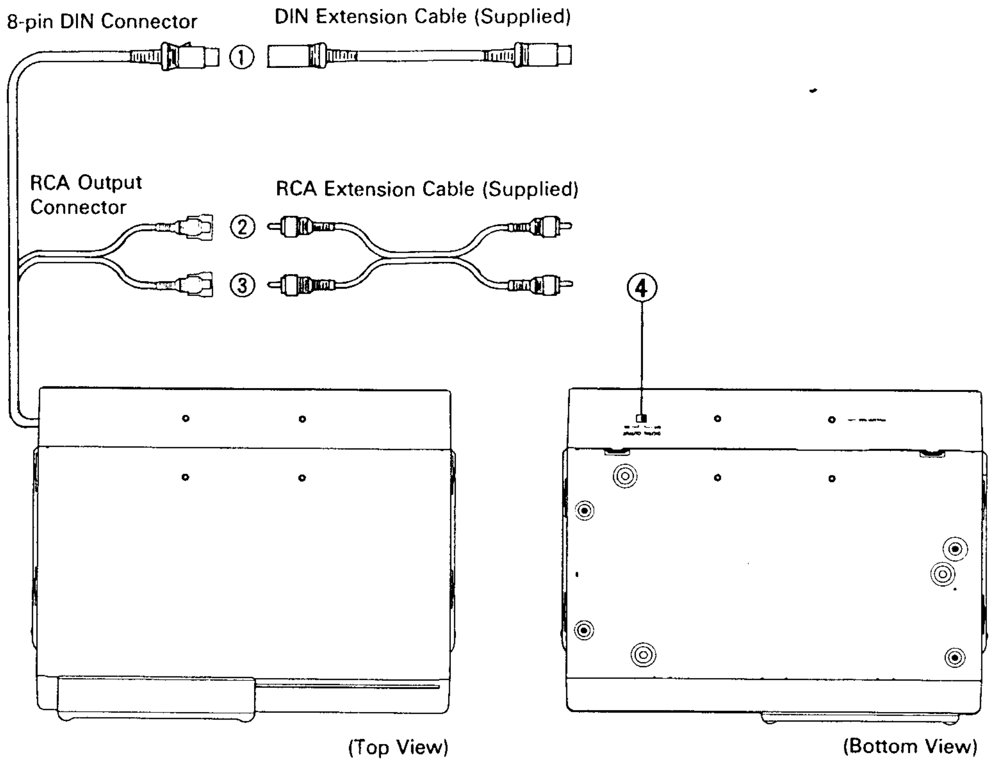
① **CD Shuttle Unit**
② **CD Magazine Insertion Slot**
③ **Eject Button**
Press this button to eject the CD magazine.
④ **CD Magazine Door**
⑤ **Audio Block**
⑥ **8-pin DIN Connector**
⑦ **Audio Connectors (RCA type) for the Right and Left Channels**
⑧ **Shipping Screws**
Must be removed before operating the unit.
⑨ **CD Magazine**
6 discs can be housed in this case.
⑩ **Disc Lever**
⑪ **Disc Index Labels**
Put the Index Label on the CD Magazine.







CONNECTIONS


8-pin DIN Connector
DIN Extension Cable (Supplied)
①
RCA Output Connector
RCA Extension Cable (Supplied)
②
③
④
(Top View)
(Bottom View)

The 5959 CD Shuttle is not equipped with built-in control unit and power amplifier. Consult with your authorized Alpine dealer for connections of your control unit and power amplifier. Refer to the following illustration for connections of the Shuttle.

NOTE:
The 5959 is designed for 12-volt DC negative ground operation so make sure that your vehicle has this system before making electrical connections.

① **8-pin DIN Connector**
Connect this to your control unit or changer control input of your Alpine Shuttle-ready head unit.

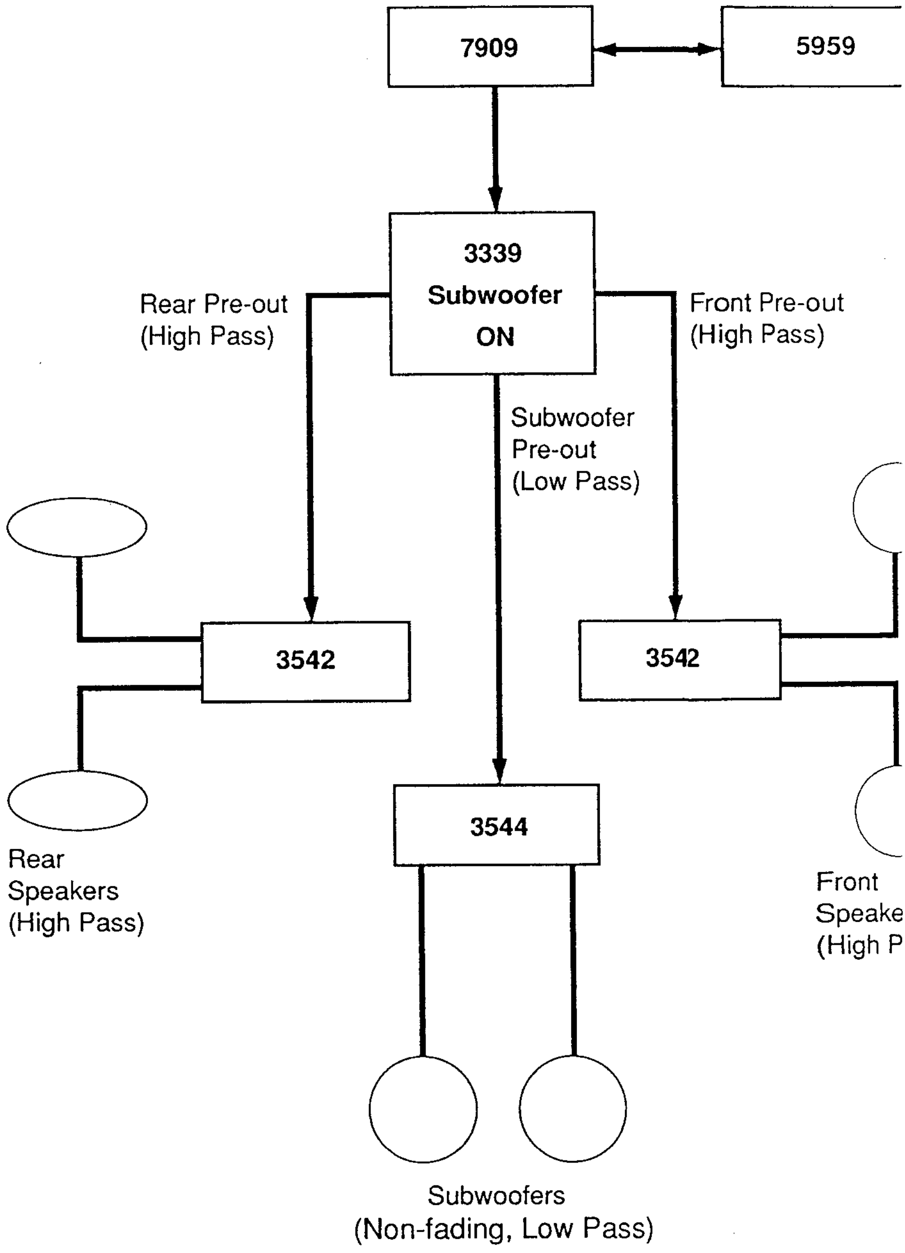
② **Right Channel RCA Output Connector (Red)**
Connect this to the right channel input of your control unit.

③ **Left Channel RCA Output Connector (White)**
Connect this to the left channel input of your control unit.

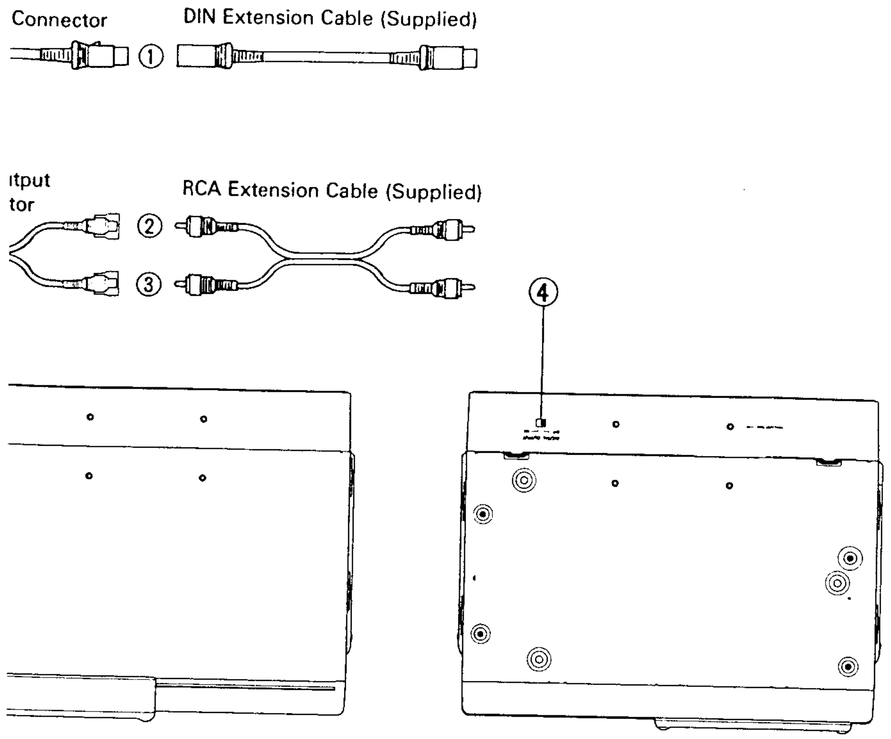
④ **DIGITAL OUTPUT ON/OFF Switch**
Use this switch to turn the digital outputs on and off. Always set to the OFF position when the digital outputs are not being used.

SYSTEM CHARTS

SYSTEM-A


7909
5959
3339
Subwoofer
ON
Rear Pre-out
(High Pass)
Front Pre-out
(High Pass)
Subwoofer
Pre-out
(Low Pass)
3542
3542
3544
Rear
Speakers
(High Pass)
Front
Speake
(High P
Subwoofers
(Non-fading, Low Pass)

CONNECTIONS


Connector
DIN Extension Cable (Supplied)
①
tput
tor
RCA Extension Cable (Supplied)
②
③
④

(Top View) (Bottom View)

59 CD Shuttle is not equipped with built-in control unit and power Consult with your authorized Alpine dealer for connections of your it and power amplifier. Refer to the following illustration for ns of the Shuttle.

59 is designed for 12-volt DC negative ground operation so make your vehicle has this system before making electrical connections.

DIN Connector
ct this to your control unit or changer control input of your Alpine e-ready head unit.

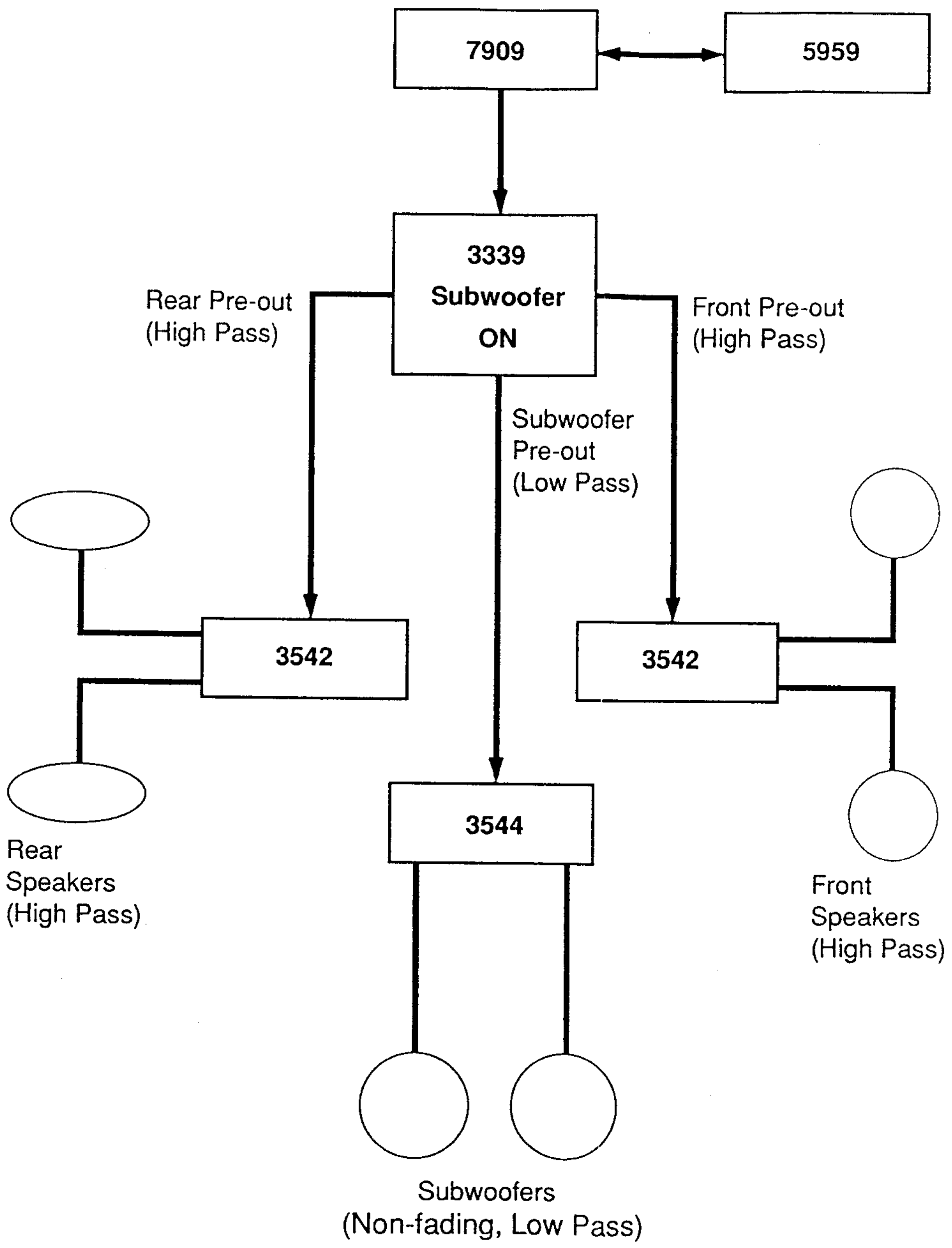
Channel RCA Output Connector (Red)
ct this to the right channel input of your control unit.

hannel RCA Output Connector (White)
ct this to the left channel input of your control unit.

AL OUTPUT ON/OFF Switch
is switch to turn the digital outputs on and off. Always set to the osition when the digital outputs are not being used.

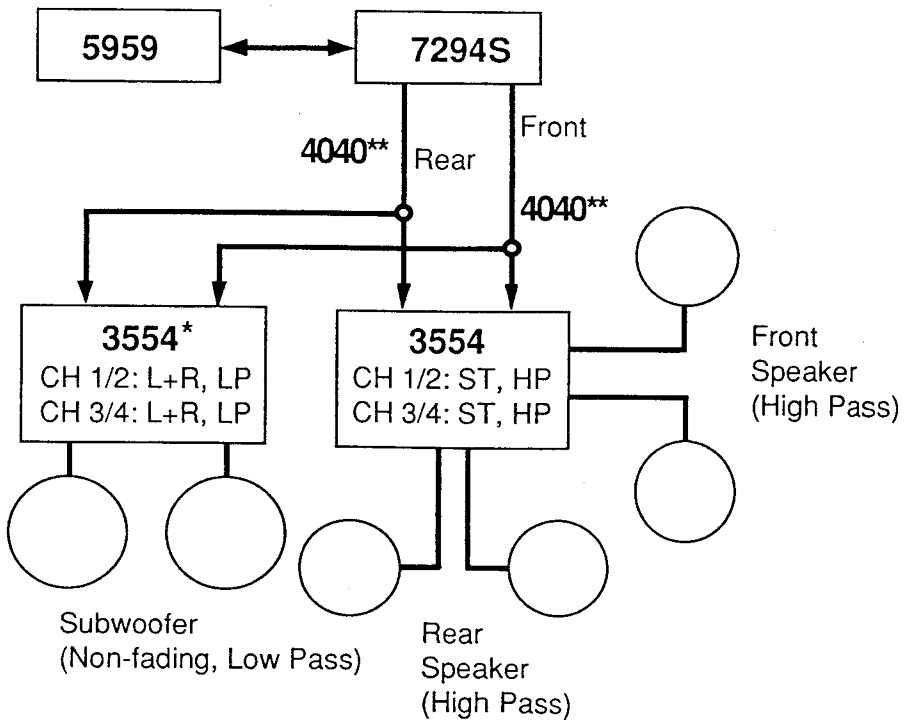
SYSTEM CHARTS

SYSTEM-A


7909
5959
3339
Subwoofer
ON
Rear Pre-out
(High Pass)
Front Pre-out
(High Pass)
Subwoofer
Pre-out
(Low Pass)
3542
3542
Rear
Speakers
(High Pass)
Front
Speakers
(High Pass)
3544
Subwoofers
(Non-fading, Low Pass)

SYSTEM CHARTS

SYSTEM-B


5959
7294S
Front
4040**
Rear
4040**
3554*
CH 1/2: L+R, LP
CH 3/4: L+R, LP
3554
CH 1/2: ST, HP
CH 3/4: ST, HP
Front
Speaker
(High Pass)
Subwoofer
(Non-fading, Low Pass)
Rear
Speaker
(High Pass)

(*) **NOTE:** To achieve a non-fading subwoofer output, connect as follows:
Front Left to CH1, Front Right to CH4, Rear Left to CH3, and Rear Right to CH2.

(**) A total of 4 pieces of the Y-cable are required.

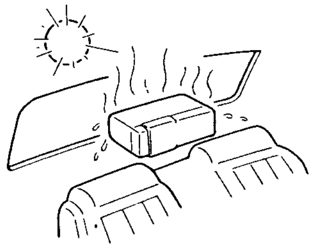
PRECAUTIONS

Do not attempt to repair or service the unit yourself; return the unit to your nearest authorized Alpine Service Station for servicing.

When your car is parked for a long period of time during the summer or winter, the temperature inside the car fluctuates greatly. The temperature inside the vehicle should be between +60°C and −10°C (+140°F and −14°F) when operating the unit.

The 5959 and 5950 are not compatible. That means the controllers and magazines for these units are not interchangeable. Please be sure you have the correct controller for the 5959. If you have any questions, please contact your authorized Alpine dealer.

Never install the Shuttle on the rear or front deck of car as direct sun and high temperature may cause damage to the Shuttle. The Alpine warranty will be voided, should the Shuttle be installed on the rear or front deck of car and damaged.



Cautions during Playback

Playing a disc while driving on a very bumpy road may result in skips but this will not scratch the disc or damage the player.

The noise level on compact discs is much lower than on analog-type records or tapes. Therefore, before playing a disc, turn the volume control fully counterclockwise, then adjust volume by gradually turning the control clockwise once playback begins.
Do not turn clockwise too abruptly as this could damage the speakers.

The audio control unit box of the Alpine 5953 or 5954 (sold separately) cannot be mounted on the rear panel of the 5959.

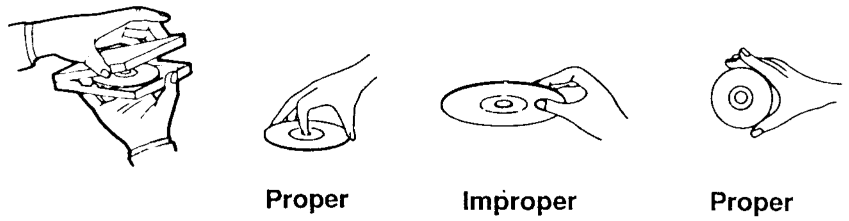
IMPORTANT

Please record the serial number of your unit in the space provided on the back cover of this manual and keep it as a permanent record. The serial number plate is located on the rear of the unit.

PROPER CARE OF YOUR DISC

Proper Handling

Handle your disc as shown. Do not drop the disc while handling. Hold the disc so you will not leave fingerprints on the surface. If the surface is scratched, it may cause the pickup to skip signal tracks. Do not affix tape, paper, or gummed labels on the disc. Do not write on the disc.



Keep Your Discs Clean

Fingerprints, dust, or soil on the surface could cause the pickup to skip signal tracks. For routine cleaning, wipe the playing surface with a clean, soft cloth from the center of the disc to the outer edge. If the surface is heavily soiled, dampen a clean soft cloth in a solution of mild neutral detergent before cleaning the disc. (Fig. A)

Disc Accessories

Various disc accessories for protecting the surface of the disc and improving sound quality (see Fig. B) are available on the market. However, many of them will increase the thickness and/or diameter of the disc. Using such accessories may place the disc beyond the specified size limitations and cause the changer to malfunction. We recommend that these accessories not be used on discs placed in the 5959.

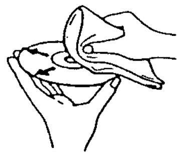


Fig. A

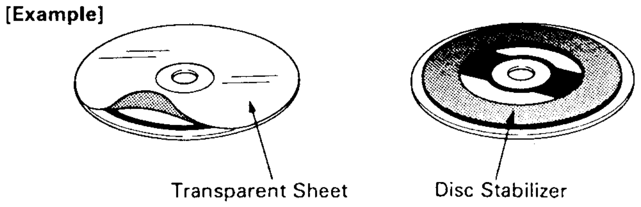


Fig. B

PROPER CARE OF YOUR DISC

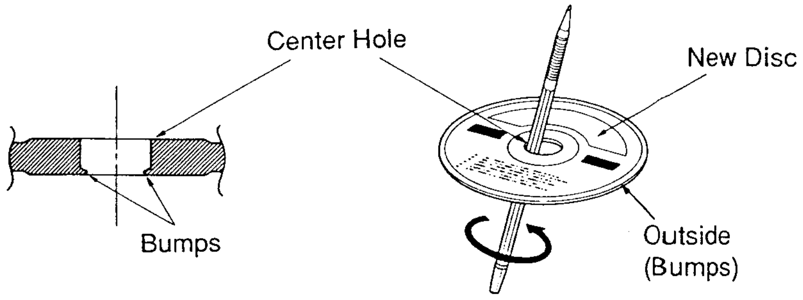
Caution for new discs

When a newly purchased disc is inserted into the changer magazine, t disc may fail to play after initial loading. This is caused by small bumps around the center hole and outside of the disc, which prevent stable loac into the correct position.

To remove the bumps, rub the inside edge of the hole and outside edg the disc with a ball-point pen or other such instrument, then insert the di again.

NOTE:

The mechanism automatically prevents this type of disc from playing a protective measure. This is not an indication of faulty operation.



Damaged Disc

Do not attempt to play cracked, warped, or otherwise damaged discs. Playing a bad disc could severely damage the playback mechanism.

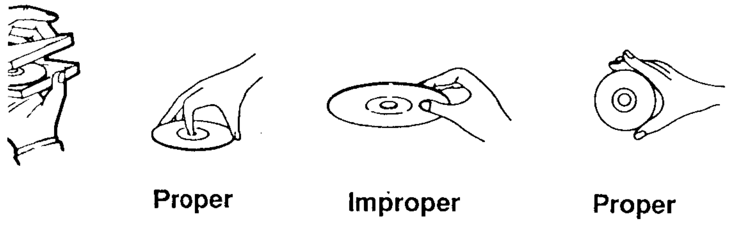
Storage

When not in use, place your discs in their individual cases and store th a cool place away from the sun, heat, and dust.

ROPER CARE OF YOUR DISC

ing

disc as shown. Do not drop the disc while handling. Hold the
ill not leave fingerprints on the surface. If the surface is
ay cause the pickup to skip signal tracks. Do not affix tape,
med labels on the disc. Do not write on the disc.



iscs Clean

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For routine cleaning, wipe the playing surface with a clean, soft
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n a clean soft cloth in a solution of mild neutral detergent before
isc. (Fig. A)

ries

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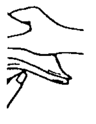


. A

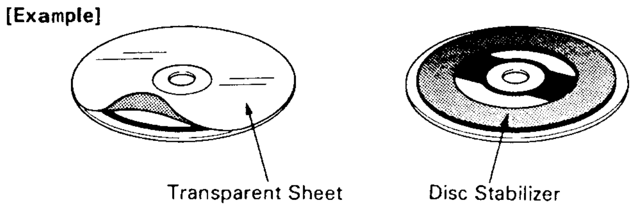


Fig. B

PROPER CARE OF YOUR DISC

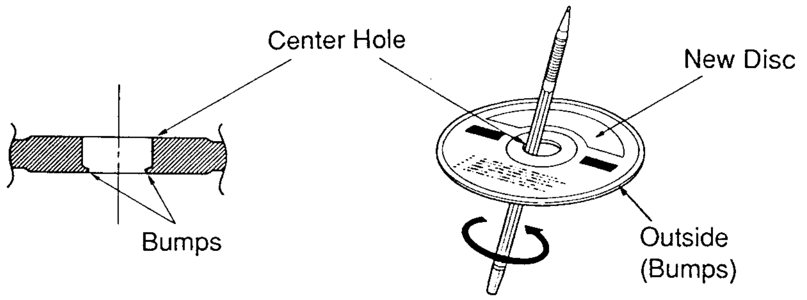
Caution for new discs

When a newly purchased disc is inserted into the changer magazine, the disc may fail to play after initial loading. This is caused by small bumps around the center hole and outside of the disc, which prevent stable loading into the correct position.

To remove the bumps, rub the inside edge of the hole and outside edge of the disc with a ball-point pen or other such instrument, then insert the disc again.

NOTE:

The mechanism automatically prevents this type of disc from playing as a protective measure. This is not an indication of faulty operation.



Damaged Disc

Do not attempt to play cracked, warped, or otherwise damaged discs. Playing a bad disc could severely damage the playback mechanism.

Storage

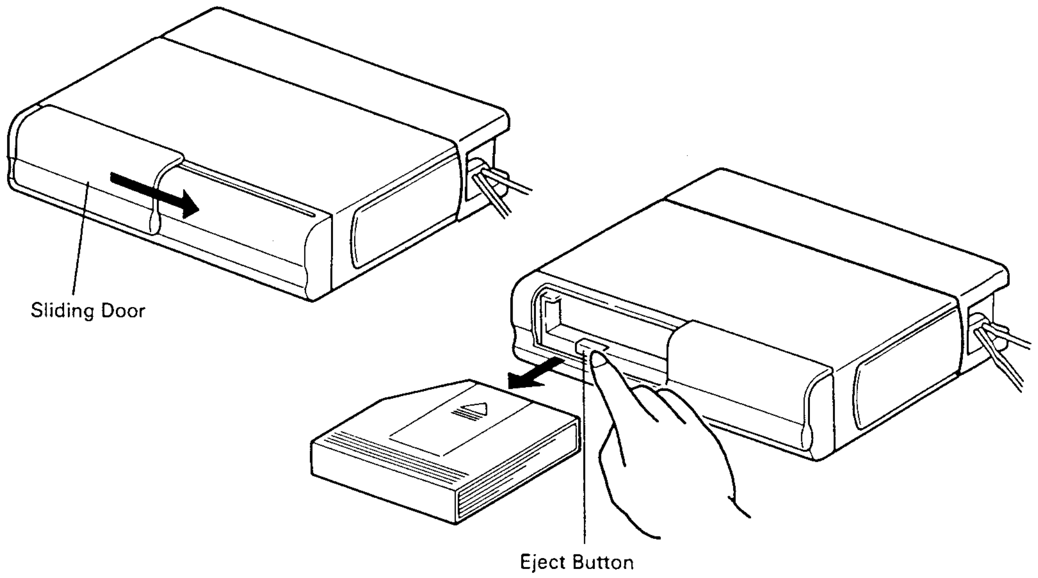
When not in use, place your discs in their individual cases and store them in a cool place away from the sun, heat, and dust.

OPERATION

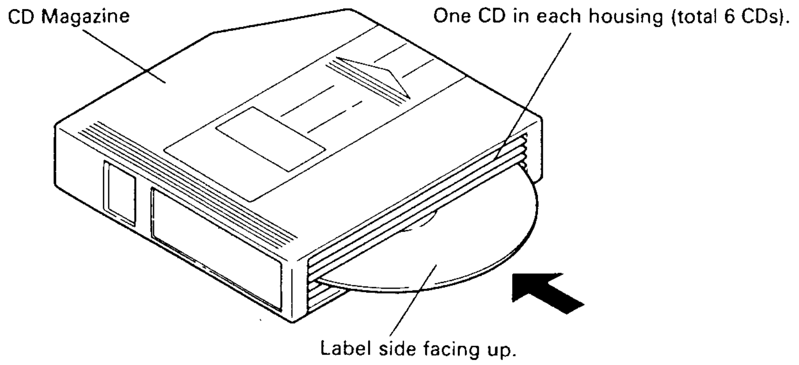
Preparation for Playback

Before operating the unit, follow the procedure below for loading the CD magazine.

1. Slide the door to the right and press the eject button to eject the CD magazine.



2. Insert your discs (up to 6) into the disc slots of the CD magazine with the label side facing up.

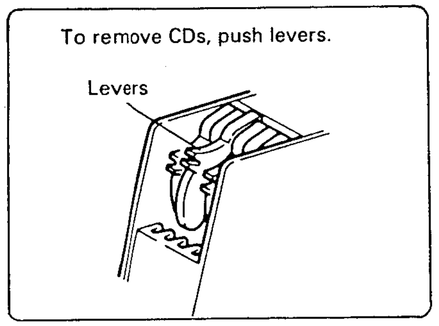


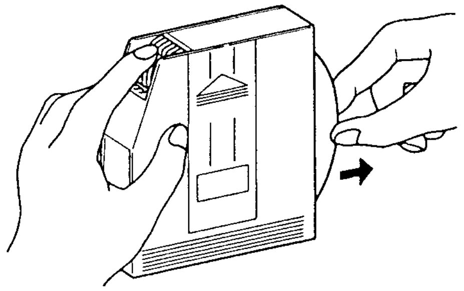
OPERATION

To remove discs already in the CD magazine, push the lever on the CD magazine for the disc you wish to eject. The disc will come halfway out of the magazine. Grasp the edge of the disc with your finger and pull it out.

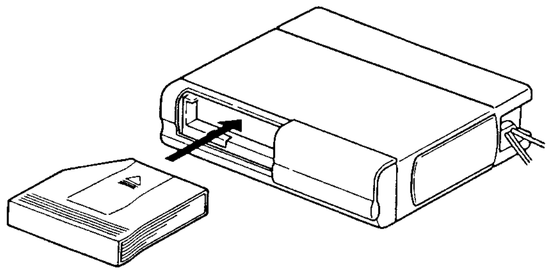
NOTE:

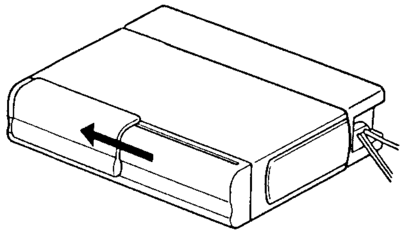
Hold the disc so you will not leave fingerprints on the disc surface (refer to "PROPER CARE OF YOUR DISC" section).





3. Insert the CD magazine all the way into the Shuttle with the narrow side facing the unit as shown here.
4. After inserting the CD magazine, slide the door to the left to close.





NOTES:

1. Do not insert heat-deformed discs into the CD magazine.
2. Do not forcibly remove the CD magazine by hand.
3. Only one disc can be inserted in each housing slot. Attempting to insert another disc may cause damage.
4. Only compact discs containing the mark shown below can be used.

COMPACT
disc
DIGITAL AUDIO

5. To play 3-inch discs, you must use the (4908) adapter ring.

INSTALLATION

Install the Shuttle in the trunk of the car or another suitable location in the passenger compartment (in the glove box, under the dashboard, etc.) where it will not interfere with your passenger leg room or safe operation of the vehicle.

The 5959 should be mounted to a stable surface (preferably attached to sheet metal). If no stable surface is available, you must build a mounting board for the Shuttle. Choose a location which allows easy access to insert and remove the CD magazine. Determine the mounting location and position (horizontal or vertical). Then have the necessary parts ready before you begin installation.

NOTE:

For the vertical installation be sure to install the Shuttle with the CD magazine slot facing upward.

Before Installation

Refer to the Connections and Operation sections before you proceed with installation.

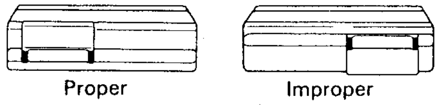
Installation of Shuttle

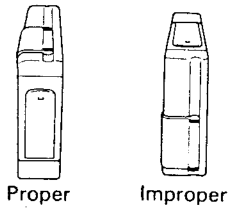
With the 5959, CDs are automatically removed from and reinserted into the CD magazine, so be careful of the following:

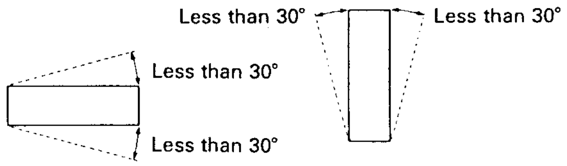
- Do not mount the unit upside down.
- Do not mount the unit at angle of more than 30 degrees off the horizontal or vertical axis.

CAUTION:

Do not install the Shuttle near the vehicle's fuel tank. This will prevent the mounting screws from damaging the tank.

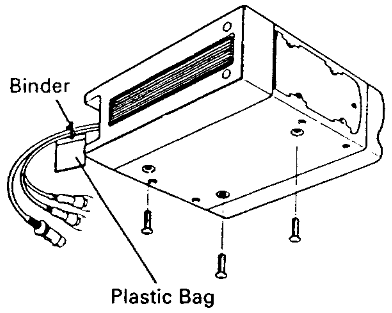






Shipping Screws

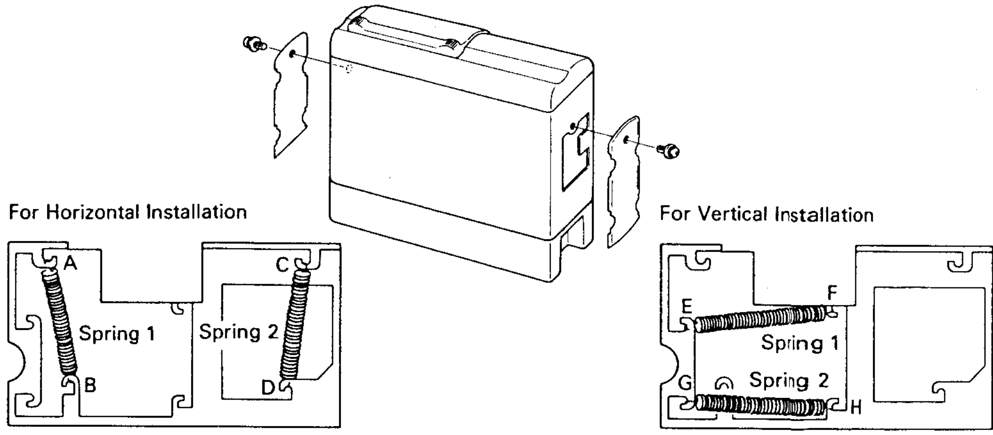
Three screws have been attached to the bottom of the Shuttle for protection during shipment. Remove these screws before using. Keep the removed screws in the plastic bag attached to the connector of Shuttle.



INSTALLATION

Mounting In the Trunk

1. Determine the installation position (horizontal or vertical). Since the Shuttle is pre-set at the factory for horizontal mounting, if you wish to install it vertically, change the spring configuration as shown. This requires removing Spring 1 from A and B and hooking it to points E and F. Remove Spring 2 from points C and D and connect to points G and H. If the spring configuration is incorrect, the shock absorbing mechanism will not function which will prevent the CD Shuttle from operating properly.



2. Use the supplied hexagon washer-head bolts (M4 x 6) to fasten two installation brackets (supplied) to the sides of the CD Shuttle (Fig. 1, Fig. 2).
3. Lift the mat or carpet covering the trunk floor and insert a supporting wooden board (thickness about 10mm) between the trunk floor and the covering mat or carpeting.

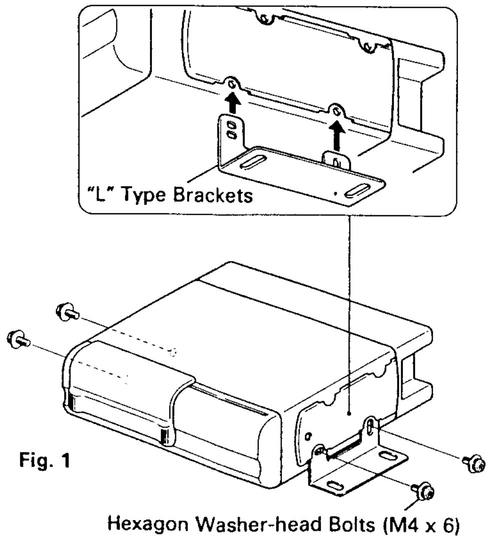


Fig. 1

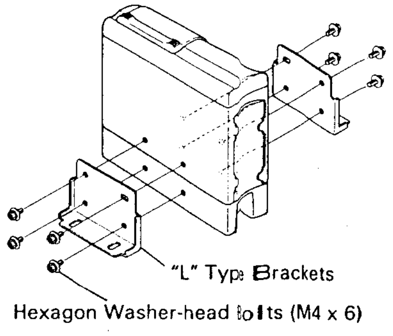


Fig.2

INSTALLATION

the Shuttle in the trunk of the car or another suitable location in the ɜr compartment (in the glove box, under the dashboard, etc.) where it ıterfere with your passenger leg room or safe operation of the

)59 should be mounted to a stable surface (preferably attached to ɜtal). If no stable surface is available, you must build a mounting the Shuttle. Choose a location which allows easy access to insert)ve the CD magazine. Determine the mounting location and position ɜl or vertical). Then have the necessary parts ready before you begin)n.

ɜ vertical installation be sure to install the Shuttle with the CD ɜ slot facing upward.

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N:
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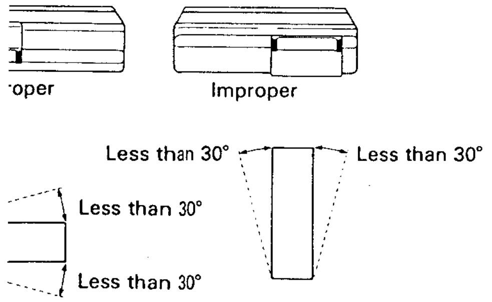
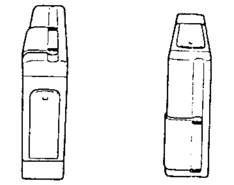
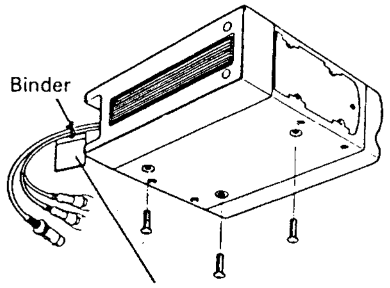

oper
Improper
Less than 30°
Less than 30°
Less than 30°
Less than 30°


Proper
Improper

ȷ Screws

screws have been attached to the f the Shuttle for protection during . Remove these screws before ɜep the removed screws in the ıg attached to the connector of


Binder
Plastic Bag

INSTALLATION

Mounting In the Trunk

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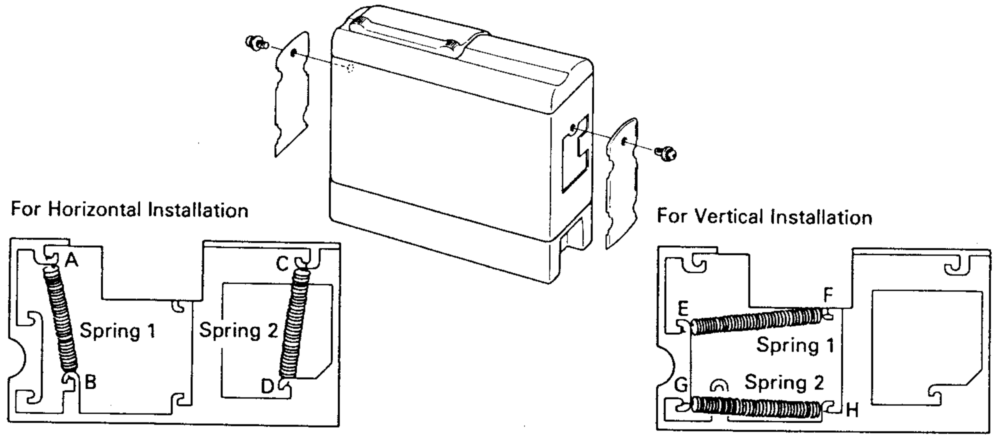

For Horizontal Installation
A
C
Spring 1
Spring 2
B
D
For Vertical Installation
E
F
Spring 1
G
Spring 2
H

2. Use the supplied hexagon washer-head bolts (M4 x 6) to fasten two installation brackets (supplied) to the sides of the CD Shuttle (Fig. 1, Fig. 2).
3. Lift the mat or carpet covering the trunk floor and insert a supporting wooden board (thickness about 10mm) between the trunk floor and the covering mat or carpeting.

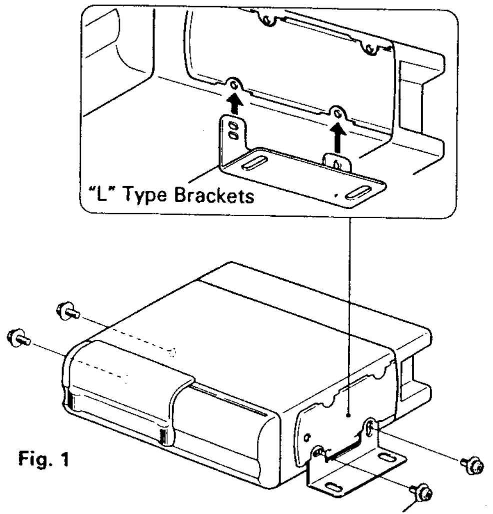

"L" Type Brackets

Fig. 1

Hexagon Washer-head Bolts (M4 x 6)

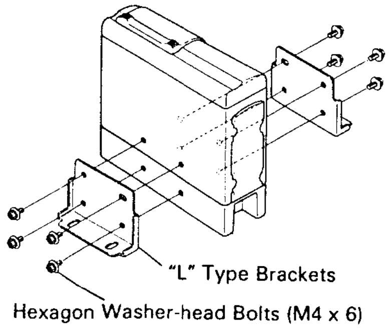
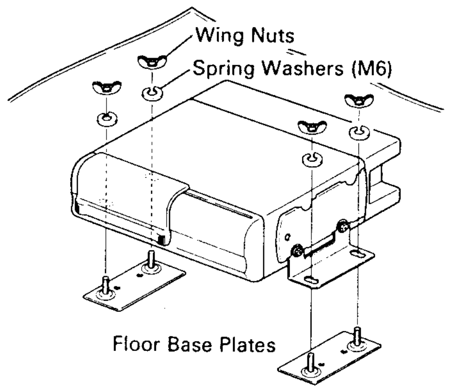

"L" Type Brackets
Hexagon Washer-head Bolts (M4 x 6)

Fig.2

INSTALLATION

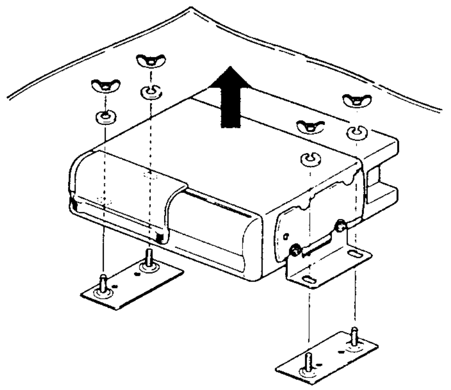
Horizontal Installation Using Floor Base Plates

1


Wing Nuts
Spring Washers (M6)
Floor Base Plates

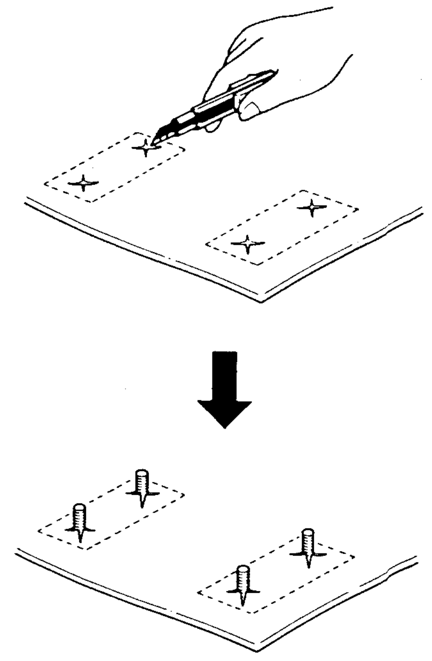
Determine a mounting location by placing the Shuttle under the carpet.

2

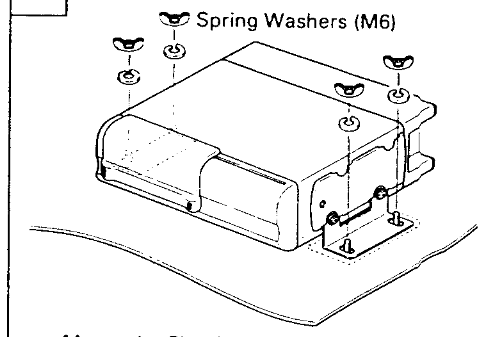


Remove wing nuts and spring washers, then lift the Shuttle up.

3 Cut mat in "+" shape with a knife to allow the threaded shaft of the floor base plate to come through.



4 Wing Nuts or Hexagon Nuts (M6)

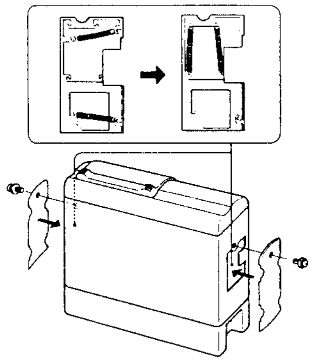

Spring Washers (M6)

Mount the Shuttle on the carpet with wi ng nuts (or hexagon nuts if required) anc spring washers.

INSTALLATION

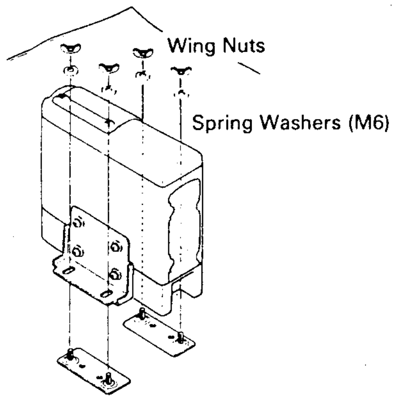
Vertical Installation Using Floor Base Plates

1

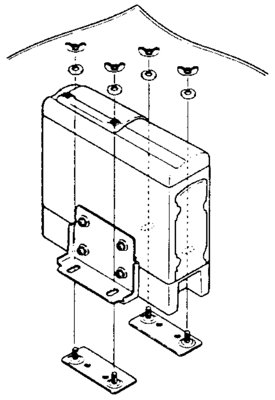


Remove the spring compartment lid by unscrewing one screw on each narrow side of the Shuttle. Change the spring configuration.

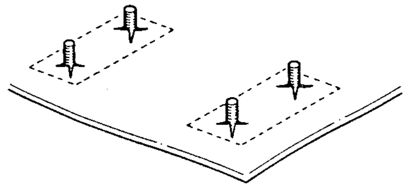
2 Determine a mounting location by placing the Shuttle under the carpet.


Wing Nuts
Spring Washers (M6)

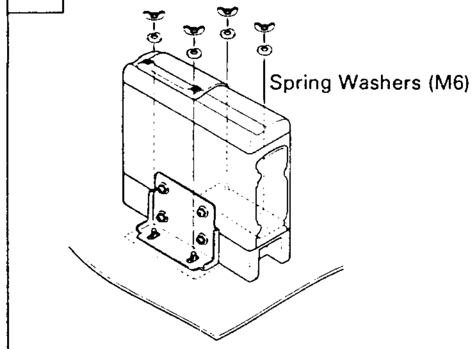
3 Remove wing nuts and spring washers, then lift the Shuttle up.



4 Refer to Fig. 3 on previous page.



5 Wing Nuts (M6) or Hexagon Nuts (M6)

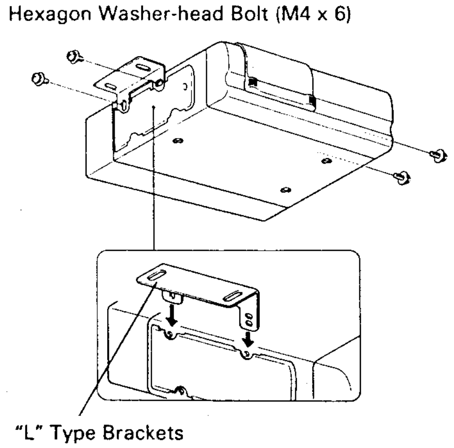

Spring Washers (M6)

Mount the Shuttle on the carpet with wing nuts (or hexagon nuts if required) and spring washers.

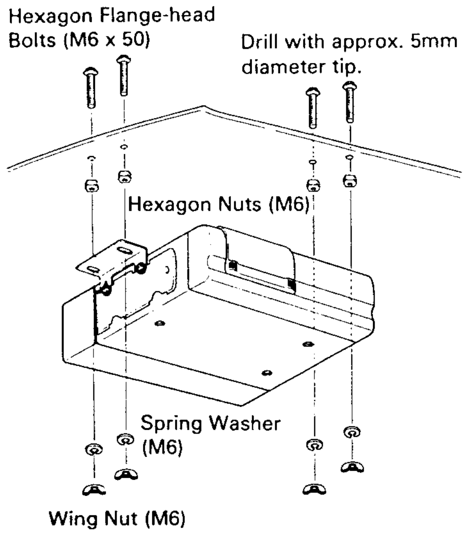
INSTALLATION

Under Rear Deck Installation

1 Insert "L" type brackets into both sides of the Shuttle and fix them using hexagon washer-head bolts.


Hexagon Washer-head Bolt (M4 x 6)
"L" Type Brackets

2 Firmly mount brackets with hexagon washer-head bolts, nuts, and wing nuts as shown below.

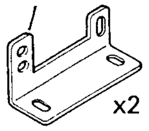

Hexagon Flange-head Bolts (M6 x 50)
Drill with approx. 5mm diameter tip.
Hexagon Nuts (M6)
Spring Washer (M6)
Wing Nut (M6)

Glove Compartment Installation:

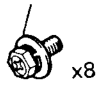
1. Bend supplied metal mounting strap in "U" shape and secure one end to the mounting holes on Shuttle top with hexagon washer-head bolts (M4 x 6).
2. Place Shuttle in glove compartment and secure Shuttle by fixing the other end of metal mounting strap to glove compartment.
3. Contact your Alpine dealer for further information on the installation in the glove compartment.

Mounting Hardware

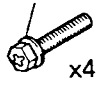
"L" Type Brackets (For Horizontal Installation)



Hexagon Washer-head Bolts (M4 x 6)

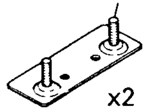


Hexagon Flange-head Bolts (M6 x 50)

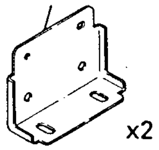


Spring Washers (M6)

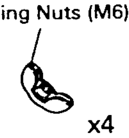
Floor Base Plates



"L" Type Brackets (For Vertical Installation)



Wing Nuts (M6)



Hexagon Nuts (M6)

Disassem

1. Removal of I

(1) Remove four s
(2) Remove Rear (
in Figure 1.
Note : Flexible P.C.E
(3) Audio P.C.Boar
(4) Remove Flexib
in Figure 2.
(5) Remove one s

2. Removal of

(1) After removal
"×" and Cove
(2) Remove two s
(3) Front Escutche
Note : Do not remo

3. Removal of I

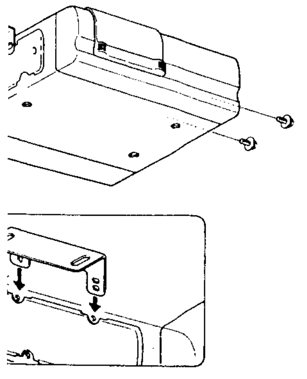
(1) After removal
marked "☆"

INSTALLATION

Deck Installation

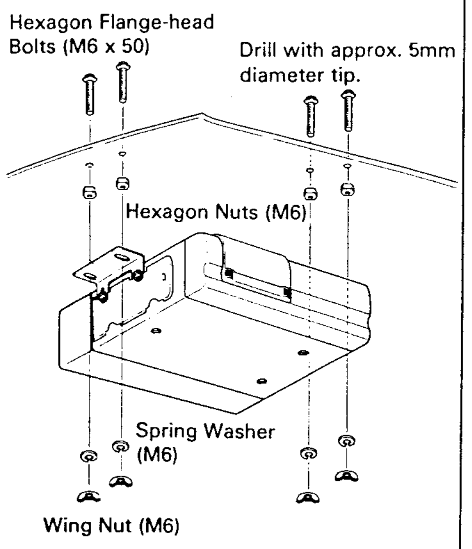
type brackets into both
e Shuttle and fix them
agon washer-head bolts.

r-head Bolt (M4 x 6)



ts

2 Firmly mount brackets with hexagon washer-head bolts, nuts, and wing nuts as shown below.


Hexagon Flange-head Bolts (M6 x 50)
Drill with approx. 5mm diameter tip.
Hexagon Nuts (M6)
Spring Washer (M6)
Wing Nut (M6)

artment Installation:

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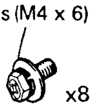
rdware

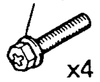
s
stallation)

Hexagon Washer-head Bolts (M4 x 6)



x8

Hexagon Flange-head Bolts (M6 x 50)



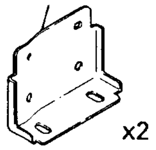
x4

Spring Washers (M6)

x4

Plates

"L" Type Brackets (For Vertical Installation)



x2

Wing Nuts (M6)

x4

Hexagon Nuts (M6)

x4

Disassembly Instructions

1. Removal of Rear Cover

(1) Remove four screws marked "○" as shown in Figure 1.
(2) Remove Rear Cover to direction of the arrow as shown in Figure 1.
Note : Flexible P.C.Board pay attention not to give damage.
(3) Audio P.C.Board with Rear Cover can be removed completely.
(4) Remove Flexible P.C.Board from Audio P.C.Board as shown in Figure 2.
(5) Remove one screw marked "△" as shown in Figure 2.

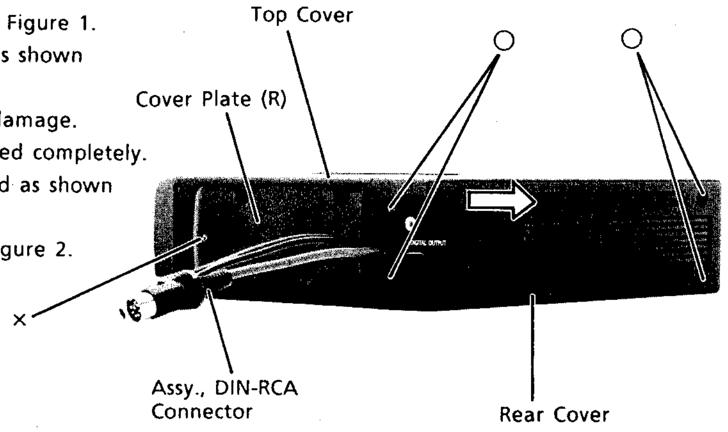

Top Cover
○
○
Cover Plate (R)
×
Assy., DIN-RCA Connector
Rear Cover

Figure 1

2. Removal of Top Cover

(1) After removal of Rear Cover, remove two screws marked "×" and Cover Plates (L)/(R) as shown in Figures 1, 3.
(2) Remove two screws marked "※" as shown in Figure 4.
(3) Front Escutcheon with Top Cover can be removed completely.
Note : Do not remove Front Escutcheon from Top Cover.

3. Removal of Inner Plate

(1) After removal of Top Cover, remove two screws marked "☆" and Hooks (A) as shown in Figure 5.

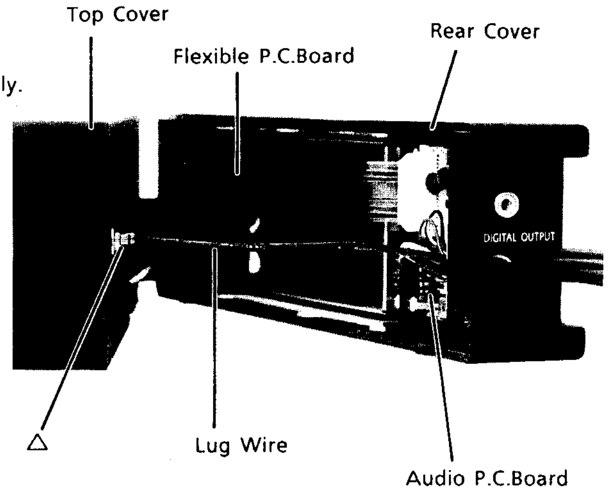

Top Cover
Flexible P.C.Board
Rear Cover
△
Lug Wire
Audio P.C.Board

Figure 2

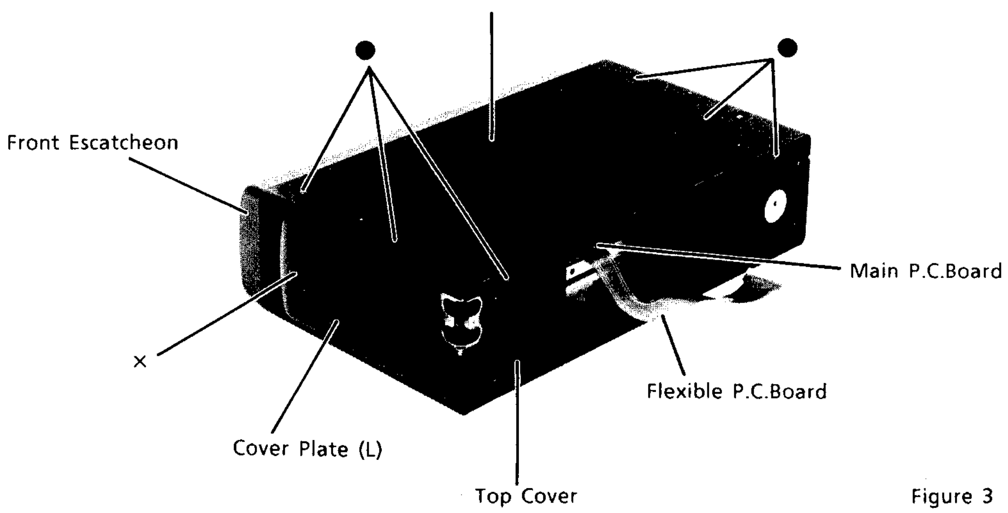

Chassis Base
●
●
Front Escatcheon
Main P.C.Board
×
Flexible P.C.Board
Cover Plate (L)
Top Cover

Figure 3

4. Removal of Main P.C.Board

(1) After removal of Inner Plate, remove six screws marked " ● " and Chassis Base as shown in Figure 3.
(2) After removal of Solder (A), remove three screws marked "▲" and Hook (B) as shown in Figure 4.
(3) Remove all the connectors and Flexible P.C.Boards from Main P.C.Board.
Note: Flexible P.C.Board pay attention not to give damage.
(4) Move Main P.C.Board to direction of the arrow, and remove two screws marked " ■ " as shown in Figure 4.

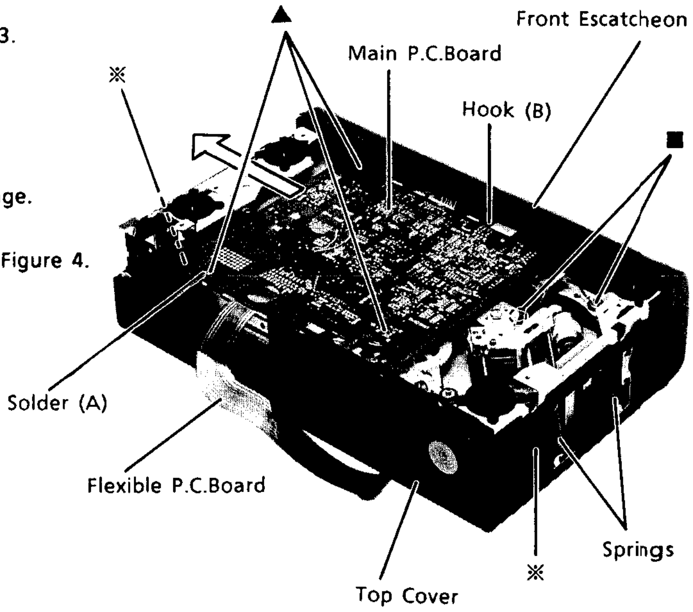

▲
Front Escatcheon
Main P.C.Board
※
Hook (B)
■
Solder (A)
Flexible P.C.Board
Springs
※
Top Cover

Figure 4

5. Removal of DR Mechanism

(1) After removal of Main P.C.Board, remove Hooks (C) of Damper Holder as shown in Figure 6.
Note: Remove all of eight Damper Holders.
(2) Remove one screw marked "□" of center of Damper and four Springs as shown in Figures 4, 5 and 7.

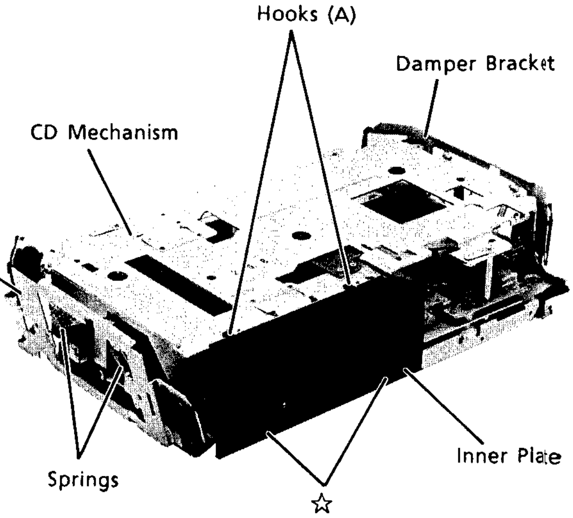

Hooks (A)
Damper Bracket
CD Mechanism
Damper Bracket
Springs
Inner Plate
☆

Figure 5

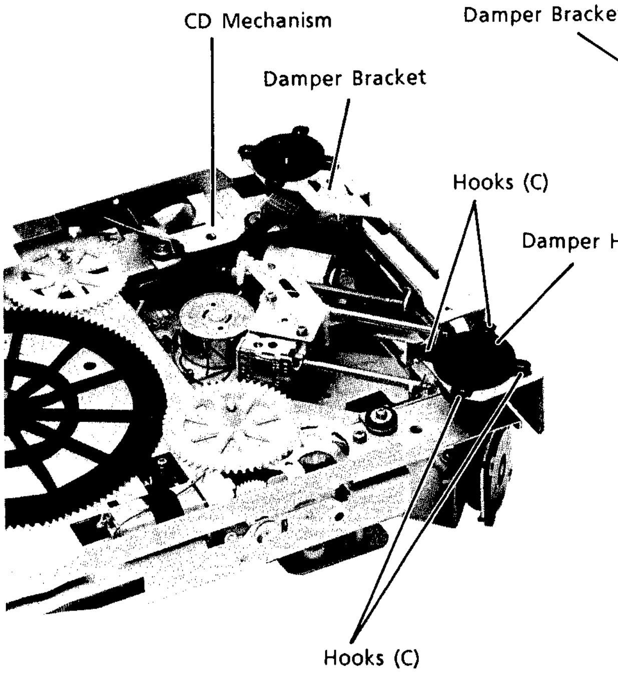

CD Mechanism
Damper Bracket
Damper Bracket
Hooks (C)
Damper Holder
Hooks (C)

Figure 6

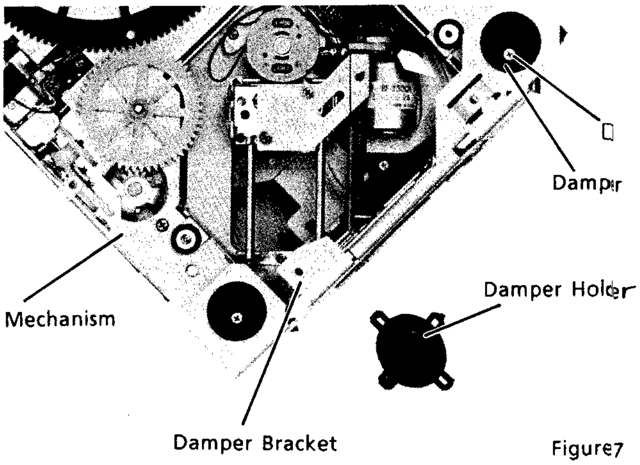

□
Damper
Damper Holder
CD Mechanism
Damper Bracket

Figure 7

Adjustment Procedures

1. Jitter Adjustment

1-1 Connections

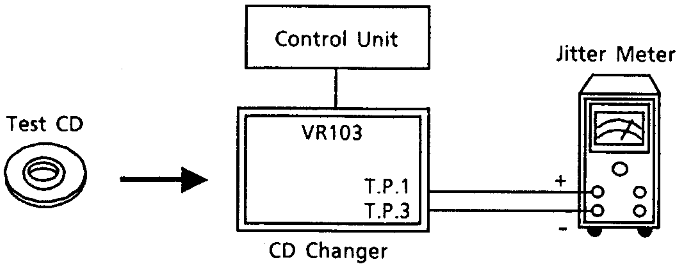


Figure 8

1-2 Preparations

(1) Test CD .... A-BEX TCD-782 (1 st track)
(2) Power Supply Voltage DC14V

1-3 Switch Settings

(1) Power Switch (Control Unit) .... ON
(2) Disc Play / Pause Switch (Control Unit) .... PLAY
(3) Others (Control Unit) .... OFF

1-4 Adjustment Procedures

(1) Set the mode to playback with the test disc loaded.
(2) Rotate VR103 fully counterclockwise.
(3) Using the Jitter meter, confirm the T.P.1 Signal shows a value.
(4) Carefully rotate VR103 clockwise until the Jitter meter shows a minimum value and then increases by +0.5nS from the minimum value.

2. Tracking Balance Adjustment

2-1 Connections

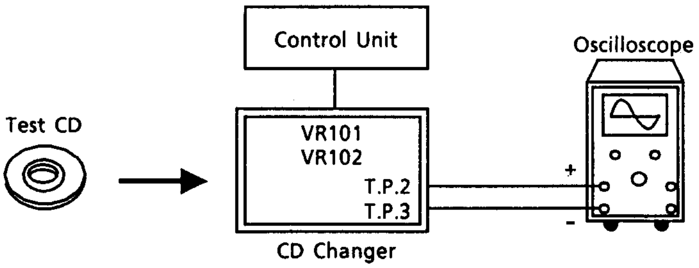


Figure 9

2-2 Preparations

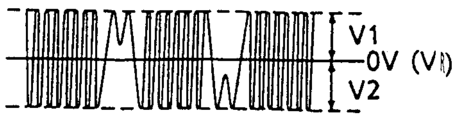
(1) Test CD .... A-BEX TCD-782 (8 th track) or SONY YEDS-18 (7th track)
(2) Power Supply Voltage DC14V

2-3 Switch Settings

(1) Power Switch (Control Unit) .... ON
(2) Disc Play / Pause Switch (Control Unit) .... PLAY
(3) Others (Control Unit) .... OFF
(4) RF Control (VR102) .... Mechanical Center (First time only)

2-4 Adjustment Procedures

(1) Load the CD magazine in the drive mechanism, select the test CD, and play the no-signal (-∞dB) track.
(2) Connect wires to T.P.3 and T.P.4.
(3) Connect the positive (+) input of the oscilloscope to T.P.2 and the negative (-) input of the oscilloscope to T.P.3.
(4) Observe the T.P.2 signal viewed from VR on the oscilloscope. (VR Reference = 0V)
(5) Adjust VR101 so that the T.P.2 signal level is symmetrical above and below relative to VR (0V). (Whole waveform moves up and down.)
(6) Disconnect the wires previously connected to T.P.3 and T.P.4.



V1 = V2

Figure 10

3. Tracking offset Adjustment

3-1 Connections

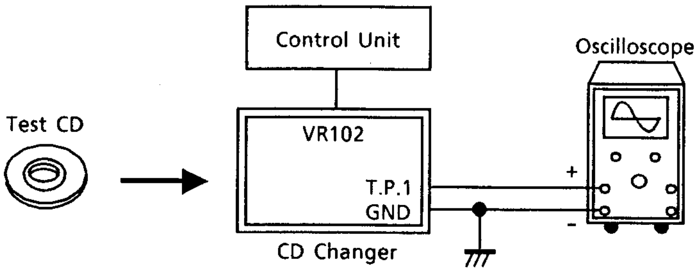


Figure 11

3-2 Preparations

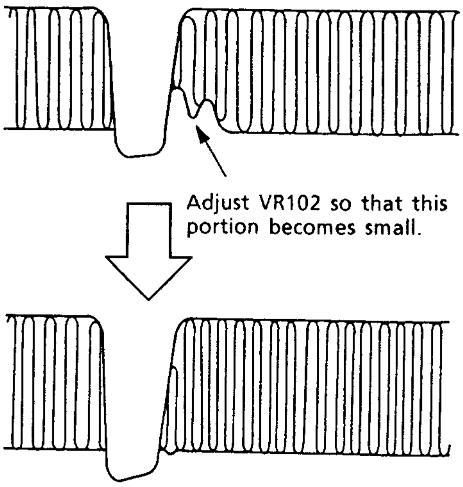
(1)	Test CD	A-BEX TCD-721 (6th track)
(2)	Power Supply Voltage	DC14V

3-3 Switch Settings

(1)	Power Switch (Control Unit)	ON
(2)	Disc Play/Pause Switch (Control Unit)	PLAY
(3)	Others (Control Unit)	OFF

3-4 Adjustment Procedures

(1) Connect the positive (+) input of the oscilloscope to T.P.1 and the negative (-) input of the oscilloscope to GND.
(2) Load the CD magazine in the drive mechanism, select the test CD, and play the track that has 1.2mm-wide scratch.
(3) Observe the T.P.1 signal on the oscilloscope.
(4) Adjust VR102 so that the returning waveform after the T.P.1 signal drop out is minimized as much as possible.
(5) Conduct the tracking balance adjustment once again.



Adjust VR102 so that this portion becomes small.

Figure 12

Adjustment Locations

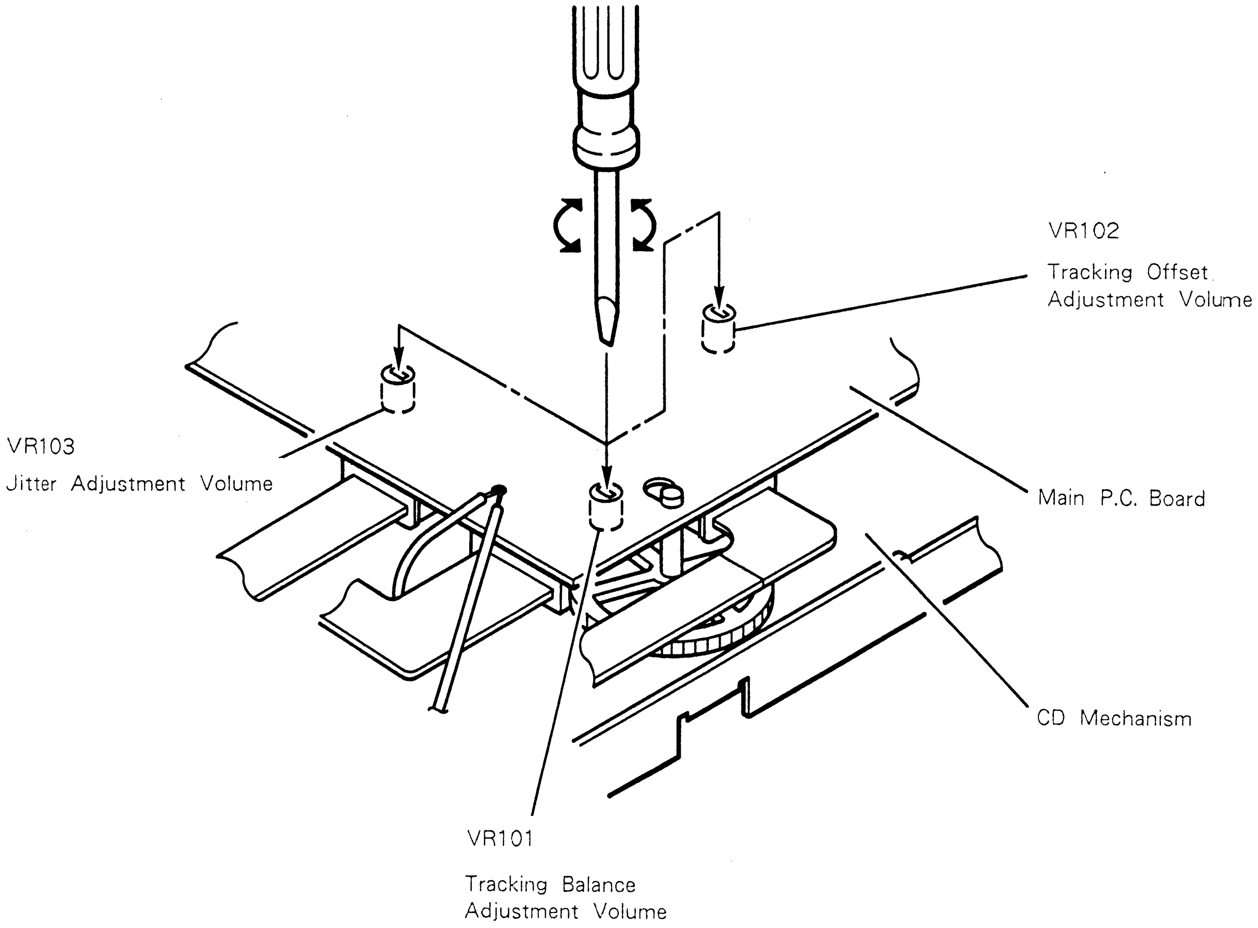
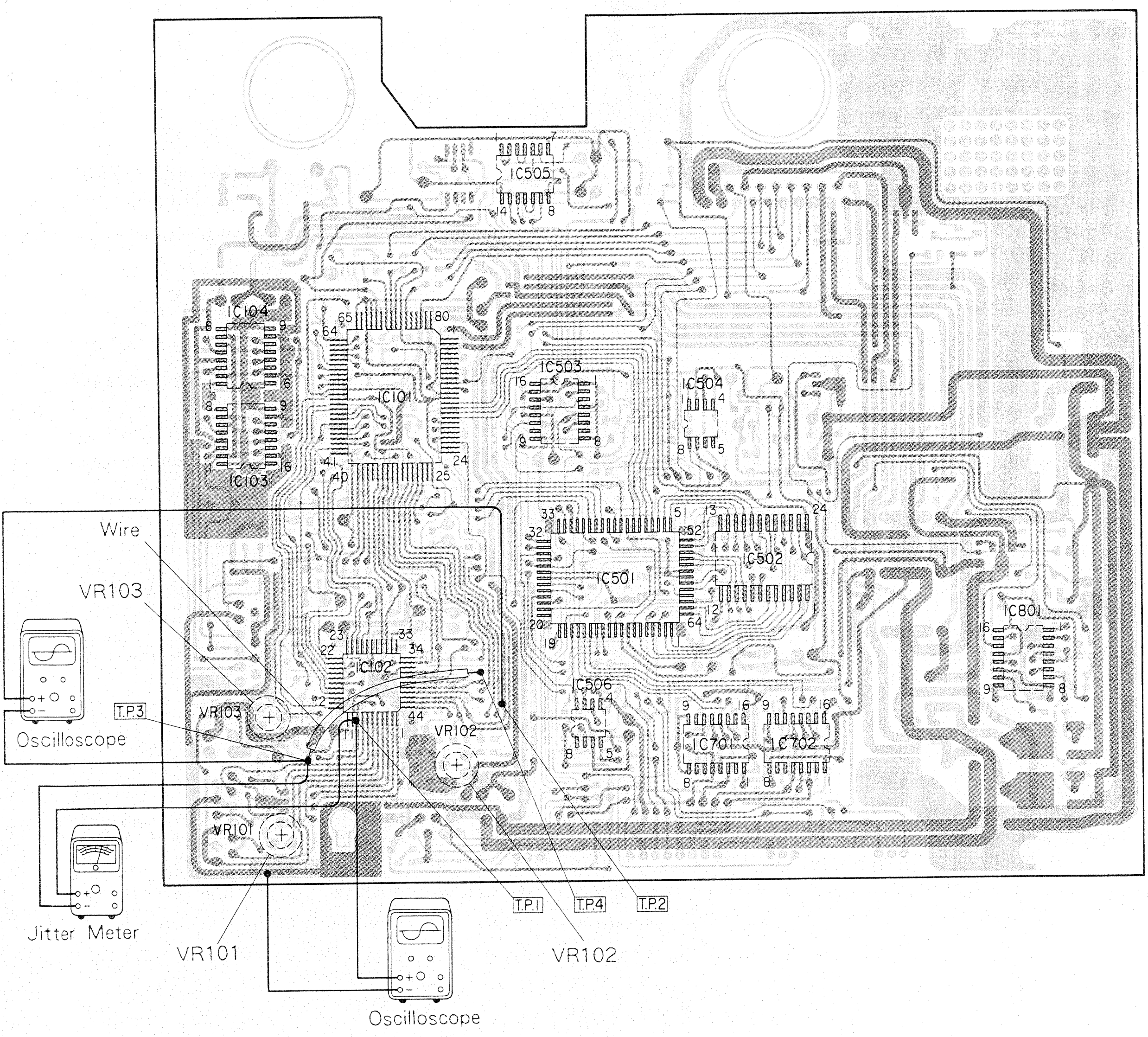

VR102
Tracking Offset Adjustment Volume
VR103
Jitter Adjustment Volume
Main P.C. Board
CD Mechanism
VR101
Tracking Balance Adjustment Volume

Figure 13


Wire
VR103
Oscilloscope
T.P.3
VR103
IC104
IC103
IC101
IC505
IC503
IC504
IC501
IC502
IC102
IC506
IC801
IC701
IC702
VR102
VR101
Jitter Meter
VR101
T.P.1
T.P.4
T.P.2
VR102
Oscilloscope

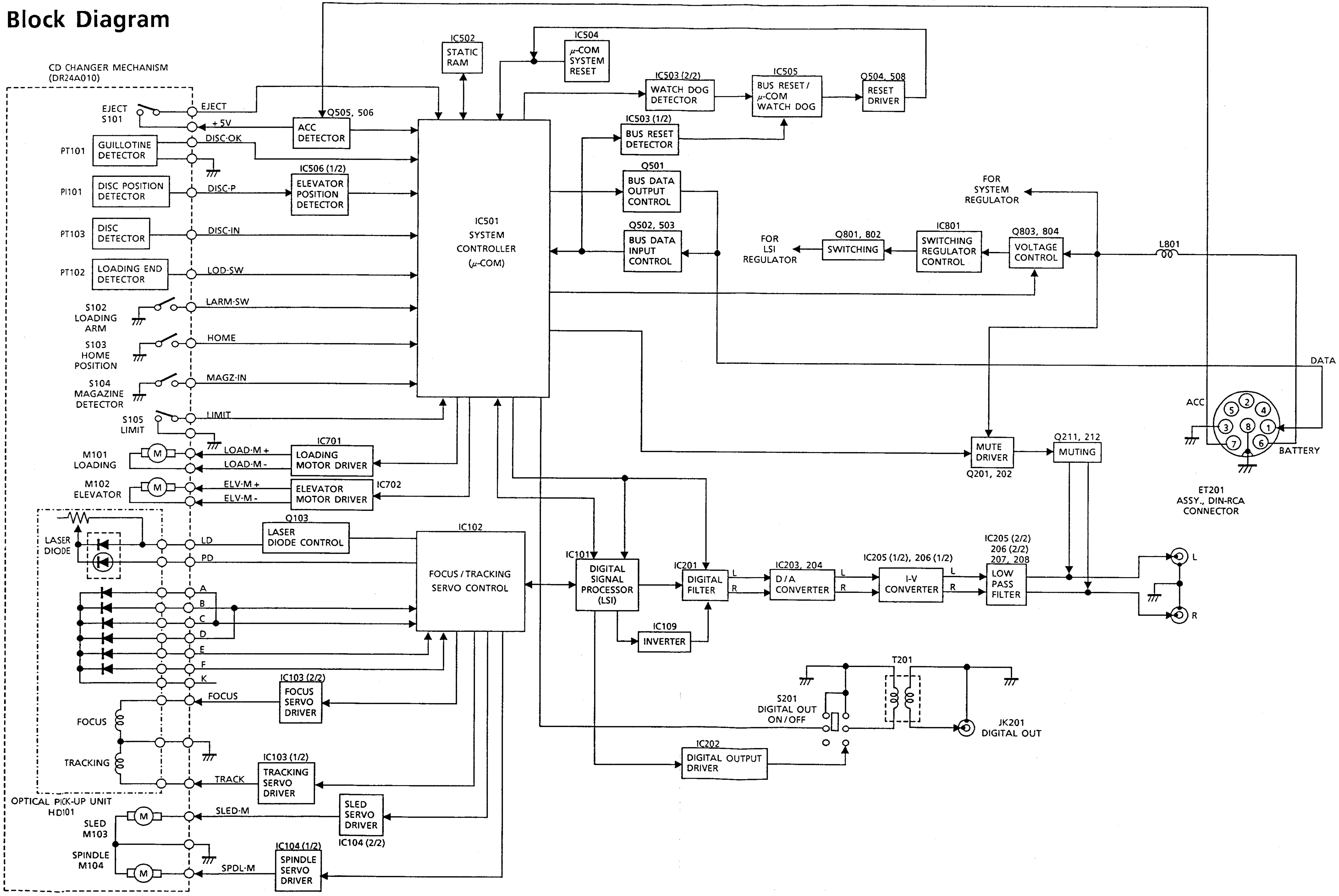
Main P.C. Board (Foil Side)

Description of IC Terminal

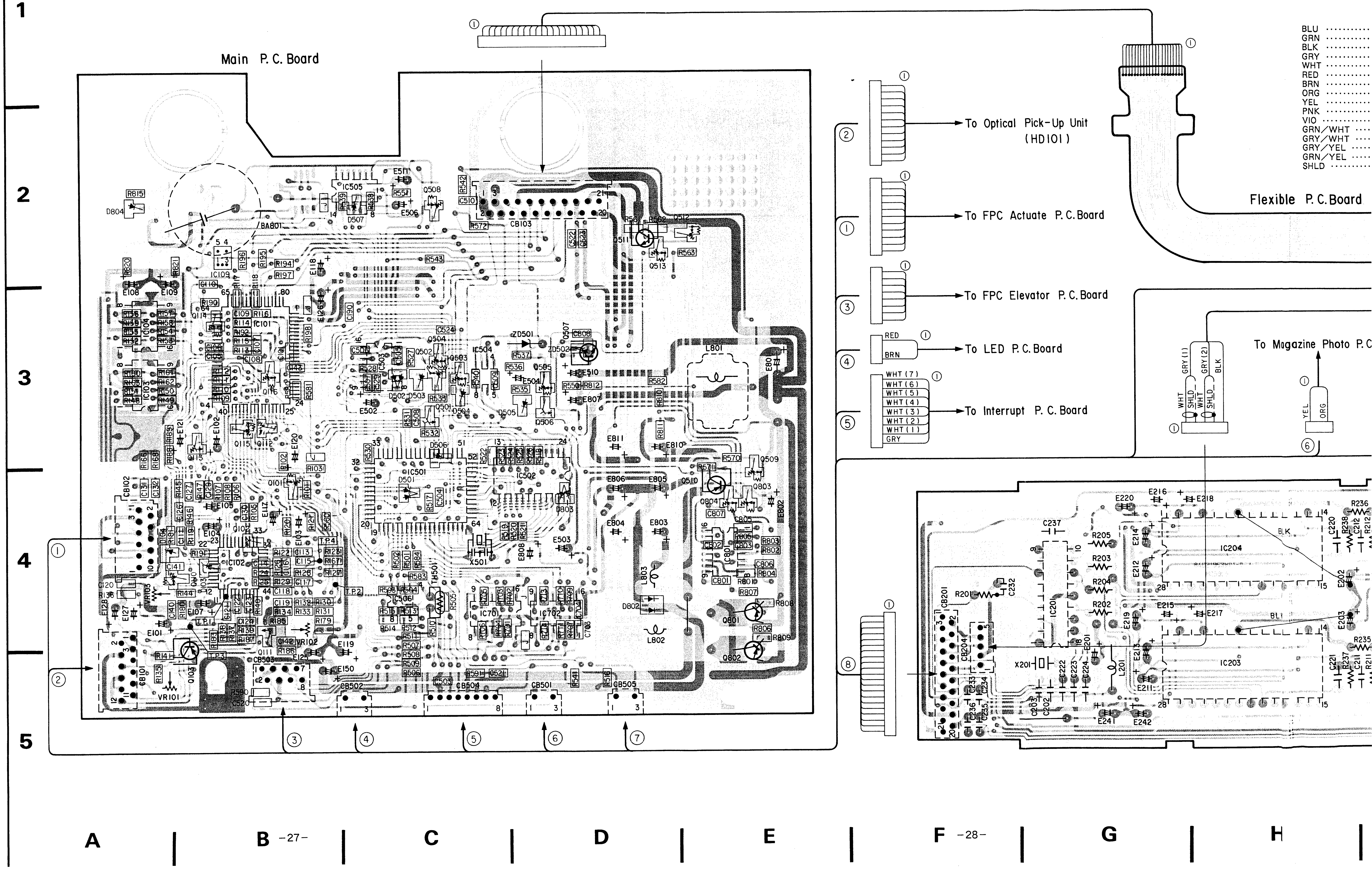
35253W01 (IC501)

No.	Symbol	I/O	Terminal Description
1	A5	O	S-RAM (IC502) ADDRESS 5
2	A4	O	S-RAM (IC502) ADDRESS 4
3	A3	O	S-RAM (IC502) ADDRESS 3
4	A2	O	S-RAM (IC502) ADDRESS 2
5	A1	O	S-RAM (IC502) ADDRESS 1
6	A0	O	S-RAM (IC502) ADDRESS 0
7	$\overline{\text{RESET}}$	—	SYSTEM RESET
8	X2	—	SYSTEM CLOCK 2 (4.19MHz)
9	X1	—	SYSTEM CLOCK 1 (4.19MHz)
10	$\overline{\text{WE}}$	O	S-RAM (IC502) $\overline{\text{WE}}$
11	$\overline{\text{OE}}$	O	S-RAM (IC502) OE
12	W OUT	I	WATCH DOG OUTPUT
13	FCONT	O	FOCUS GAIN CONTROL OUTPUT
14	ELV M (+)	O	ELEVATOR MOTOR (+)
15	ELV M (-)	O	ELEVATOR MOTOR (-)
16	LOD M (+)	O	LOADING MOTOR (+)
17	LOD M (-)	O	LOADING MOTOR (-)
18	LSI CONT	O	LSI CONTROL
19	MUTE	O	MUTE OUTPUT
20	NC	—	OPEN
21	VCONT	O	CIRCUMFERENCE LSI REGULATOR CONTROL OUTPUT
22	$\overline{\text{LAPM SW}}$	I	LOADING ARM SW
23	HI TEMP	I	HIGH TEMPARATURE DETECT SENSOR
24	EJE KEY	I	MAGAZINE EJECT KEY
25	IGN SW	I	IGN SW
26	V_{SS}	—	GND
27	STB RELE	I	STANDBY·RELEASE SIGNAL
28	BATT SW	I	BATTERY DETECT SWITCH
29	BUS IN	I	BUS DATA INPUT
30	DISCP	I	DISC POSITION DETECT SENSOR
31	DISCIN	I	DISC DETECT PHOTO SW
32	LOD SW	I	LOADING END PHOTO SW
33	DISC OK	I	GUILLOTINE DETECT PHOTO SW
34	$\overline{\text{HMP SW}}$	I	HOME POSITION SW
35	$\overline{\text{MAG SW}}$	I	MAGAZINE DETECT SW
36	$\overline{\text{LIM SW}}$	I	INSIDE CIRCUMFERENCE LIMIT SW
37	BUS OUT	O	BUS DATA OUTPUT
38	$\overline{\text{LSI RST}}$	O	CIRCUMFERENCE LSI RESET SIGNAL
39	BUCK	O	TC9236F (IC101) BUS CLOCK
40	CCE	O	TC9236F (IC101) CE
41	LO TEMP	I	LOW TEMPARATURE DETECT SENSOR
42	DOUT SW	I	DIGITAL OUT ON/OFF SW
43	LOCK	—	GND
44	GND	—	GND
45	BUS3	I/O	TC9236F (IC101) BUS DATA 3
46	BUS2	I/O	TC9236F (IC101) BUS DATA 2
47	BUS1	I/O	TC9236F (IC101) BUS DATA 1
48	BUS0	I/O	TC9236F (IC101) BUS DATA 0
49	D8	I/O	S-RAM (IC502) I/O 8
50	D7	I/O	S-RAM (IC502) I/O 7
51	D6	I/O	S-RAM (IC502) I/O 6
52	D5	I/O	S-RAM (IC502) I/O 5
53	D4	I/O	S-RAM (IC502) I/O 4
54	D3	I/O	S-RAM (IC502) I/O 3
55	D2	I/O	S-RAM (IC502) I/O 2
56	D1	I/O	S-RAM (IC502) I/O 1
57	V_{PP}	—	PROM INPUT REGULATOR
58	V_{DD}	—	REGULATOR +5V
59	$\overline{\text{CE}}$	O	S-RAM (IC502) CE
60	A10	O	S-RAM (IC502) ADDRESS 10
61	A9	O	S-RAM (IC502) ADDRESS 9
62	A8	O	S-RAM (IC502) ADDRESS 8
63	A7	O	S-RAM (IC502) ADDRESS 7
64	A6	O	S-RAM (IC502) ADDRESS 6

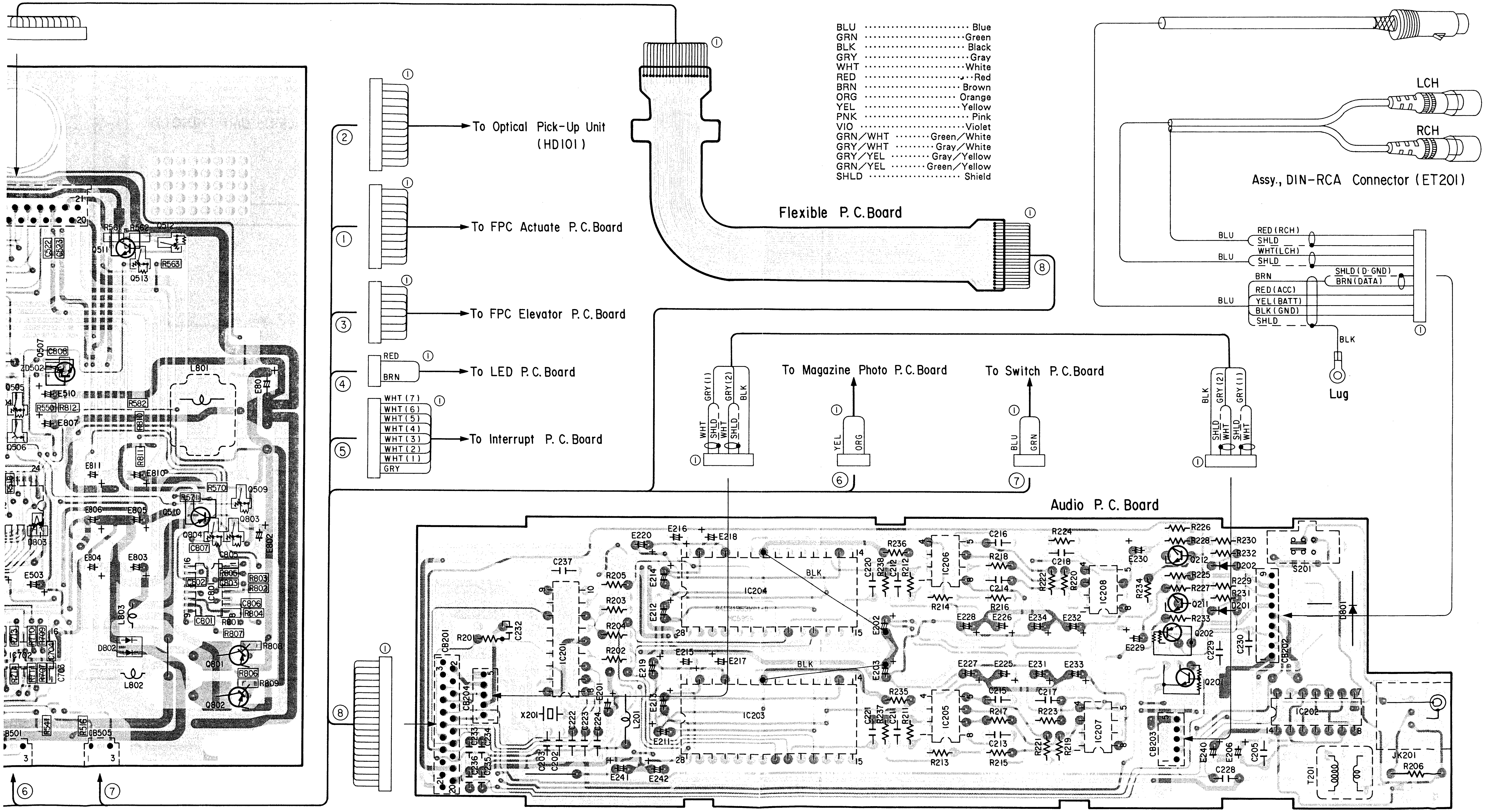
Block Diagram


CD CHANGER MECHANISM
(DR24A010)
EJECT S101
EJECT
+5V
PT101
GUILLOTINE DETECTOR
DISC·OK
PI101
DISC POSITION DETECTOR
DISC·P
PT103
DISC DETECTOR
DISC·IN
PT102
LOADING END DETECTOR
LOD·SW
S102 LOADING ARM
LARM·SW
S103 HOME POSITION
HOME
S104 MAGAZINE DETECTOR
MAGZ·IN
S105 LIMIT
LIMIT
M101 LOADING
LOAD·M+
LOAD·M-
M102 ELEVATOR
ELV·M+
ELV·M-
LASER DIODE
LD
PD
A
B
C
D
E
F
K
FOCUS
TRACKING
TRACK
OPTICAL PICK-UP UNIT HD101
SLED M103
SLED·M
SPINDLE M104
SPDL·M
M
Q505, 506
ACC DETECTOR
IC506 (1/2)
ELEVATOR POSITION DETECTOR
IC502
STATIC RAM
IC504
μ-COM SYSTEM RESET
IC503 (2/2)
WATCH DOG DETECTOR
IC505
BUS RESET / μ-COM WATCH DOG
Q504, 508
RESET DRIVER
IC503 (1/2)
BUS RESET DETECTOR
Q501
BUS DATA OUTPUT CONTROL
Q502, 503
BUS DATA INPUT CONTROL
IC501
SYSTEM CONTROLLER
(μ-COM)
FOR SYSTEM REGULATOR
FOR LSI REGULATOR
Q801, 802
SWITCHING
IC801
SWITCHING REGULATOR CONTROL
Q803, 804
VOLTAGE CONTROL
L801
DATA
ACC
BATTERY
1 2 3 4 5 6 7 8
ET201
ASSY., DIN-RCA CONNECTOR
IC701
LOADING MOTOR DRIVER
IC702
ELEVATOR MOTOR DRIVER
Q103
LASER DIODE CONTROL
IC102
FOCUS / TRACKING SERVO CONTROL
IC103 (2/2)
FOCUS SERVO DRIVER
IC103 (1/2)
TRACKING SERVO DRIVER
SLED SERVO DRIVER
IC104 (2/2)
IC104 (1/2)
SPINDLE SERVO DRIVER
MUTE DRIVER
Q201, 202
Q211, 212
MUTING
IC101
DIGITAL SIGNAL PROCESSOR (LSI)
IC201
DIGITAL FILTER
IC109
INVERTER
IC203, 204
D / A CONVERTER
IC205 (1/2), 206 (1/2)
I-V CONVERTER
IC205 (2/2)
206 (2/2)
207, 208
LOW PASS FILTER
L
R
T201
S201
DIGITAL OUT ON / OFF
JK201
DIGITAL OUT
IC202
DIGITAL OUTPUT DRIVER

Parts Layout on P. C. Boards and Wiring Diagram (1/2)


Main P. C. Board
To Optical Pick-Up Unit (HD101)
To FPC Actuate P. C. Board
To FPC Elevator P. C. Board
To LED P. C. Board
To Interrupt P. C. Board
RED
BRN
WHT (7)
WHT (6)
WHT (5)
WHT (4)
WHT (3)
WHT (2)
WHT (1)
GRY
Flexible P. C. Board
BLU
GRN
BLK
GRY
WHT
RED
BRN
ORG
YEL
PNK
VIO
GRN/WHT
GRY/WHT
GRY/YEL
GRN/YEL
SHLD
To Magazine Photo P. C
GRY (1)
GRY (2)
BLK
WHT
SHLD
YEL
ORG
CB101
CB102
CB103
CB501
CB502
CB503
CB504
CB505
CB201
CB204
IC101
IC102
IC103
IC104
IC109
IC501
IC502
IC504
IC505
IC701
IC702
IC201
IC203
IC204
L801
L802
L803
L201
X501
X201
BA801
TH501
VR101
VR102
VR103
T.P.1
T.P.2
T.P.3
T.P.4
① ② ③ ④ ⑤ ⑥ ⑦ ⑧
1
2
3
4
5
A
B
C
D
E
F
G
H

ng Diagram (1/2)


To Optical Pick-Up Unit (HD101)
To FPC Actuate P.C.Board
To FPC Elevator P.C.Board
RED
BRN
To LED P.C.Board
WHT(7)
WHT(6)
WHT(5)
WHT(4)
WHT(3)
WHT(2)
WHT(1)
GRY
To Interrupt P.C.Board
Flexible P.C.Board
LCH
RCH
Assy., DIN-RCA Connector (ET201)
RED(RCH)
SHLD
WHT(LCH)
SHLD
BLU
SHLD(D.GND)
BRN(DATA)
BRN
RED(ACC)
YEL(BATT)
BLK(GND)
SHLD
BLK
Lug
To Magazine Photo P.C.Board
To Switch P.C.Board
GRY(1)
GRY(2)
BLK
WHT
SHLD
YEL
ORG
BLU
GRN
Audio P.C.Board
IC201
IC202
IC203
IC204
IC205
IC206
IC207
IC208
CB201
CB202
CB203
CB204
Q201
Q202
Q211
Q212
D201
D202
D801
S201
JK201
T201
X201
L201
R206
L801
L802
L803
D802
Q801
Q802
Q803
Q804
Q509
Q510
Q511
Q512
Q513
Q506
Q507
ZD502
CB501
CB505
①
②
③
④
⑤
⑥
⑦
⑧

BLU	Blue
GRN	Green
BLK	Black
GRY	Gray
WHT	White
RED	Red
BRN	Brown
ORG	Orange
YEL	Yellow
PNK	Pink
VIO	Violet
GRN/WHT	Green/White
GRY/WHT	Gray/White
GRY/YEL	Gray/Yellow
GRN/YEL	Green/Yellow
SHLD	Shield

D | E | F | G | H | I | J | K

Parts Layout on P. C. Boards and Wiring Diagram (2/2)

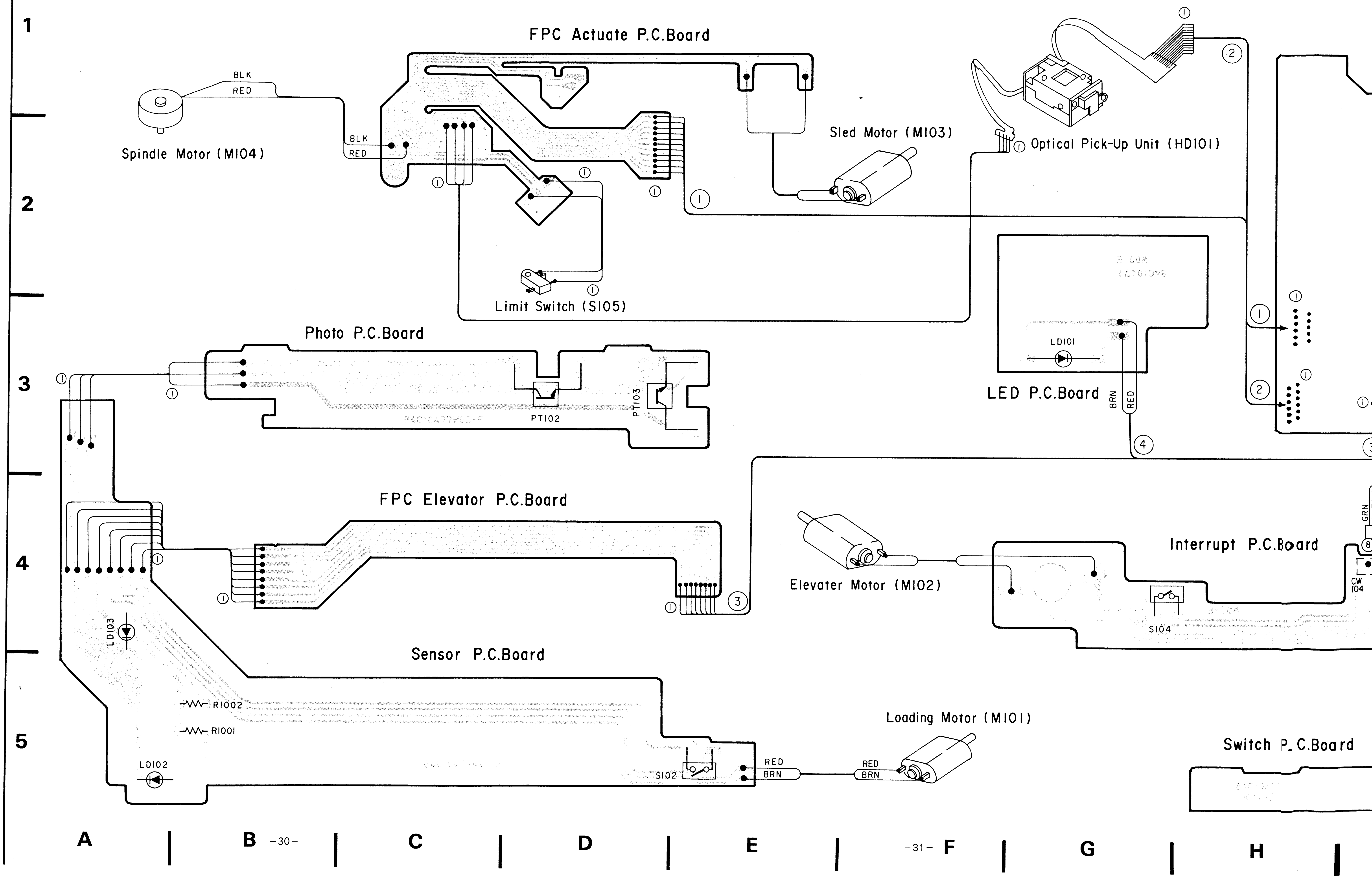
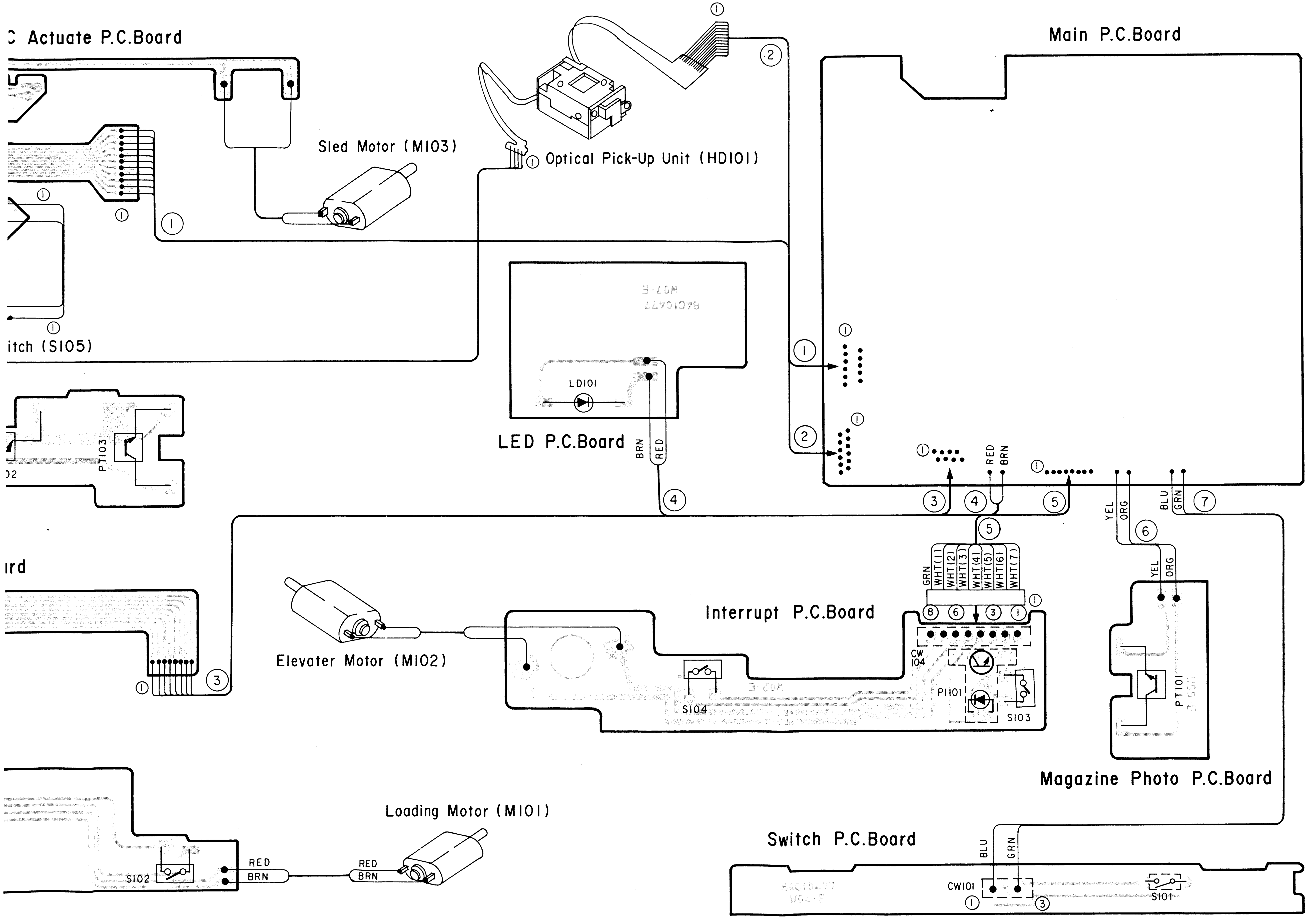

1
2
3
4
5
FPC Actuate P.C.Board
BLK
RED
BLK
RED
Spindle Motor (M104)
Sled Motor (M103)
Optical Pick-Up Unit (HD101)
Limit Switch (S105)
①
②
LED P.C.Board
LD101
BRN
RED
④
Photo P.C.Board
PT102
PT103
84C10477W03-E
FPC Elevator P.C.Board
③
Elevater Motor (M102)
Interrupt P.C.Board
S104
GRN
⑧
CW
104
Sensor P.C.Board
LD103
R1002
R1001
LD102
S102
RED
BRN
Loading Motor (M101)
RED
BRN
Switch P. C.Board
A
B
C
D
E
F
G
H

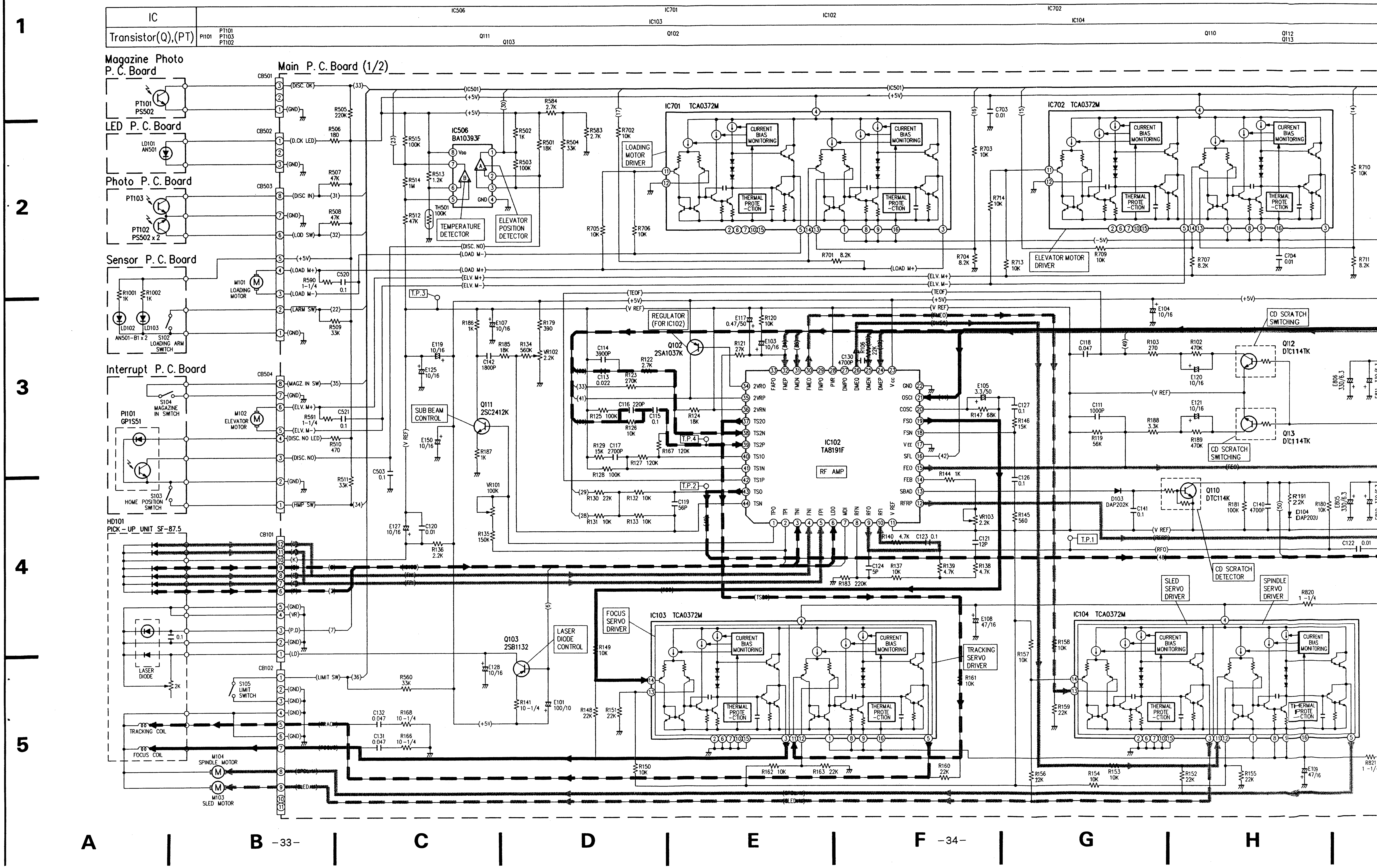
Diagram (2/2)

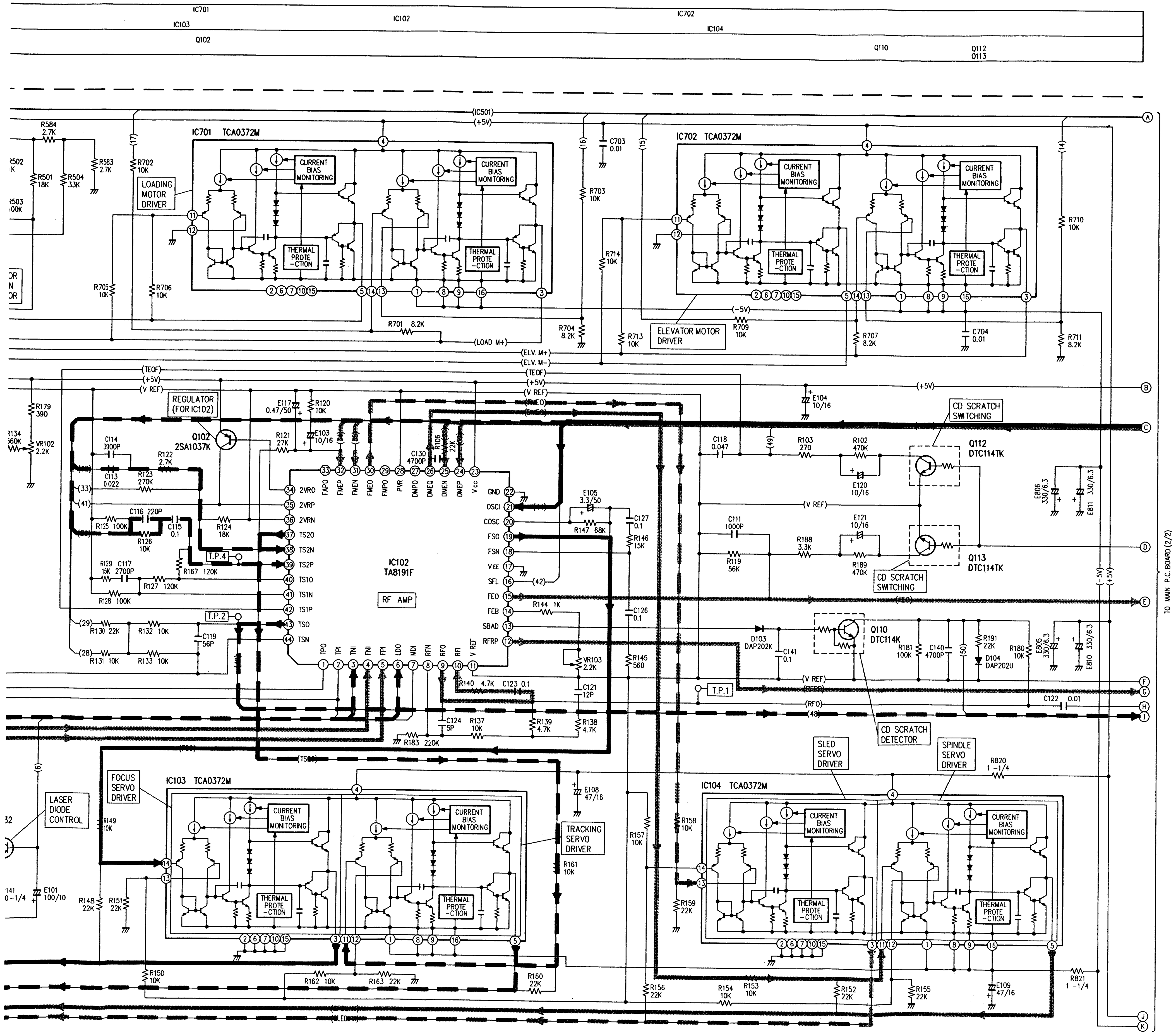

C Actuate P.C.Board
Sled Motor (M103)
Optical Pick-Up Unit (HD101)
Main P.C.Board
itch (S105)
LED P.C.Board
LD101
BRN
RED
PT103
02
rd
Elevater Motor (M102)
Interrupt P.C.Board
GRN
WHT(1)
WHT(2)
WHT(3)
WHT(4)
WHT(5)
WHT(6)
WHT(7)
CW 104
P1101
S103
S104
YEL
ORG
BLU
GRN
PT101
Magazine Photo P.C.Board
Loading Motor (M101)
S102
RED
BRN
Switch P.C.Board
CW101
S101
①
②
③
④
⑤
⑥
⑦
⑧

BLU	Blue
GRN	Green
BLK	Black
GRY	Gray
WHT	White
RED	Red
BRN	Brown
ORG	Orange
YEL	Yellow
PNK	Pink
VIO	Violet
GRN/WHT	Green/White
GRY/WHT	Gray/White
GRY/YEL	Gray/Yellow
GRN/YEL	Green/Yellow
SHLD	Shield

D | E | F | G | H | I | J | K

Schematic Diagram (1/3)


IC
Transistor(Q),(PT)
IC506
IC701
IC103
IC102
IC702
IC104
PI101
PT101
PT103
PT102
Q111
Q103
Q102
Q110
Q112
Q113
Magazine Photo P. C. Board
PT101 PS502
LED P. C. Board
LD101 AN501
Photo P. C. Board
PT103
PT102 PS502 x 2
Sensor P. C. Board
R1001 1K
R1002 1K
LD102
LD103
AN501-B1 x 2
S102 LOADING ARM SWITCH
M101 LOADING MOTOR
Interrupt P. C. Board
PI101 GP1S51
S104 MAGAZINE IN SWITCH
M102 ELEVATOR MOTOR
S103 HOME POSITION SWITCH
HD101 PICK-UP UNIT SF-87.5
LASER DIODE
S105 LIMIT SWITCH
TRACKING COIL
FOCUS COIL
M104 SPINDLE MOTOR
M103 SLED MOTOR
Main P. C. Board (1/2)
CB501
CB502
CB503
CB504
CB101
CB102
(DISC. OK)
(GND)
(D.CK LED)
(DISC IN)
(LOD SW)
(+5V)
(LOAD M+)
(LOAD M-)
(LARM SW)
(MAGZ. IN SW)
(ELV. M+)
(ELV. M-)
(DISC. NO LED)
(DISC. NO)
(HMP SW)
(VR)
(P.D)
(LD)
(LIMIT SW)
(TRACK)
(FOCUS)
(SPDL M)
(SLED M)
IC506 BA10393F
TEMPERATURE DETECTOR
ELEVATOR POSITION DETECTOR
TH501 100K
IC701 TCA0372M
LOADING MOTOR DRIVER
CURRENT BIAS MONITORING
THERMAL PROTE-CTION
IC702 TCA0372M
ELEVATOR MOTOR DRIVER
REGULATOR (FOR IC102)
Q102 2SA1037K
IC102 TA8191F
RF AMP
SUB BEAM CONTROL
Q111 2SC2412K
T.P.1
T.P.2
T.P.3
T.P.4
VR101 100K
VR102 2.2K
VR103 2.2K
Q103 2SB1132
LASER DIODE CONTROL
IC103 TCA0372M
FOCUS SERVO DRIVER
TRACKING SERVO DRIVER
IC104 TCA0372M
SLED SERVO DRIVER
SPINDLE SERVO DRIVER
CD SCRATCH SWITCHING
Q112 DTC114TK
Q113 DTC114TK
Q110 DTC114K
CD SCRATCH DETECTOR
D103 DAP202K
D104 DAP202U
2VRO
2VRP
2VRN
TS20
TS2N
TS2P
TS10
TS1N
TS1P
TSO
TSN
GND
OSCI
COSC
FSO
FSN
VEE
SFL
FEO
FEB
SBAD
RFRP
Vcc
(V REF)
(TEOF)
(RFO)
(FEO)
(TSO)
1
2
3
4
5
A
B
C
D
E
F
G
H


IC701
IC103
Q102
IC102
IC702
IC104
Q110
Q112
Q113
IC701 TCA0372M
IC702 TCA0372M
CURRENT BIAS MONITORING
THERMAL PROTE -CTION
LOADING MOTOR DRIVER
ELEVATOR MOTOR DRIVER
REGULATOR (FOR IC102)
Q102 2SA1037K
IC102 TA8191F
RF AMP
CD SCRATCH SWITCHING
Q112 DTC114TK
Q113 DTC114TK
Q110 DTC114K
CD SCRATCH DETECTOR
D103 DAP202K
D104 DAP202U
T.P.1
T.P.2
T.P.4
SLED SERVO DRIVER
SPINDLE SERVO DRIVER
FOCUS SERVO DRIVER
TRACKING SERVO DRIVER
LASER DIODE CONTROL
IC103 TCA0372M
IC104 TCA0372M
(IC501)
(+5V)
(LOAD M+)
(ELV. M+)
(ELV. M−)
(TEOF)
(V REF)
(-5V)
(FEO)
(RFO)
(TSO)
(SLED)
TO MAIN P.C. BOARD (2/2)
A
B
C
D
E
F
G
H
I
J
K

IC102

1	1.8V	11	2.1V	21	2.5V	31	2.1V	41	2.1V
2	2.1V	12	2.3V	22	0V	32	2.1V	42	2.1V
3	2.1V	13	2.4V	23	5.1V	33	2.1V	43	2.1V
4	2.1V	14	2.1V	24	2.2V	34	4.5V	44	2.1V
5	2.1V	15	2.1V	25	2.2V	35	4.2V		
6	PS	16	5.1V	26	PS	36	2.1V		
7	PS	17	0V	27	PS	37	2.1V		
8	PS	18	2.1V	28	2.1V	38	2.1V		
9	PS	19	2.1V	29	PS	39	2.1V		
10	PS	20	2.1V	30	PS	40	2.1V		

IC103

1	−5V	9	−5V
2	0V	10	0V
3	PS	11	0V
4	5.1V	12	0V
5	PS	13	1.5V
6	0V	14	1.5V
7	0V	15	0V
8	−5V	16	0V

IC104

1	−5V	9	−5V
2	0V	10	0V
3	PS	11	1.5V
4	5.1V	12	PS
5	PS	13	0V
6	0V	14	1.5V
7	0V	15	0V
8	−5V	16	0.2V

IC506

1	0V
2	5.1V
3	1.6V
4	0V
5	2V
6	5V
7	0V
8	5.1V

IC701

1	0.2V	9	0.2V
2	0V	10	0V
3	0.7V	11	0.7V
4	1.3V	12	0V
5	0.7V	13	0V
6	0V	14	0.4V
7	0V	15	0V
8	0.2V	16	0.2V

IC702

1	−5V	9	0.2V
2	0V	10	0V
3	0.7V	11	0.7V
4	1.2V	12	0V
5	0.7V	13	0V
6	0V	14	0.4V
7	0V	15	0V
8	0.2V	16	0.2V

	E	C	B
Q102	5.1V	4.2V	4.5V
Q103	5.1V	0V	4.7V
Q110	2.1V	2.4V	2.2V
Q111	1.2V	1.2V	1.8V
Q112	2.1V	2.1V	0V
Q113	2.1V	2.1V	0V

(Measuring Conditions)

1.Power Supply Voltage	:DC14V
2.Measuring Meter	:Digital Multi Volt Meter
3.Measuring Point Reference	:Between Ground
4.Measuring Conditions	:Test Disc Play (A-BEX TCD-782 Track NO.2 1KHz) Digital Output Switch (OFF)

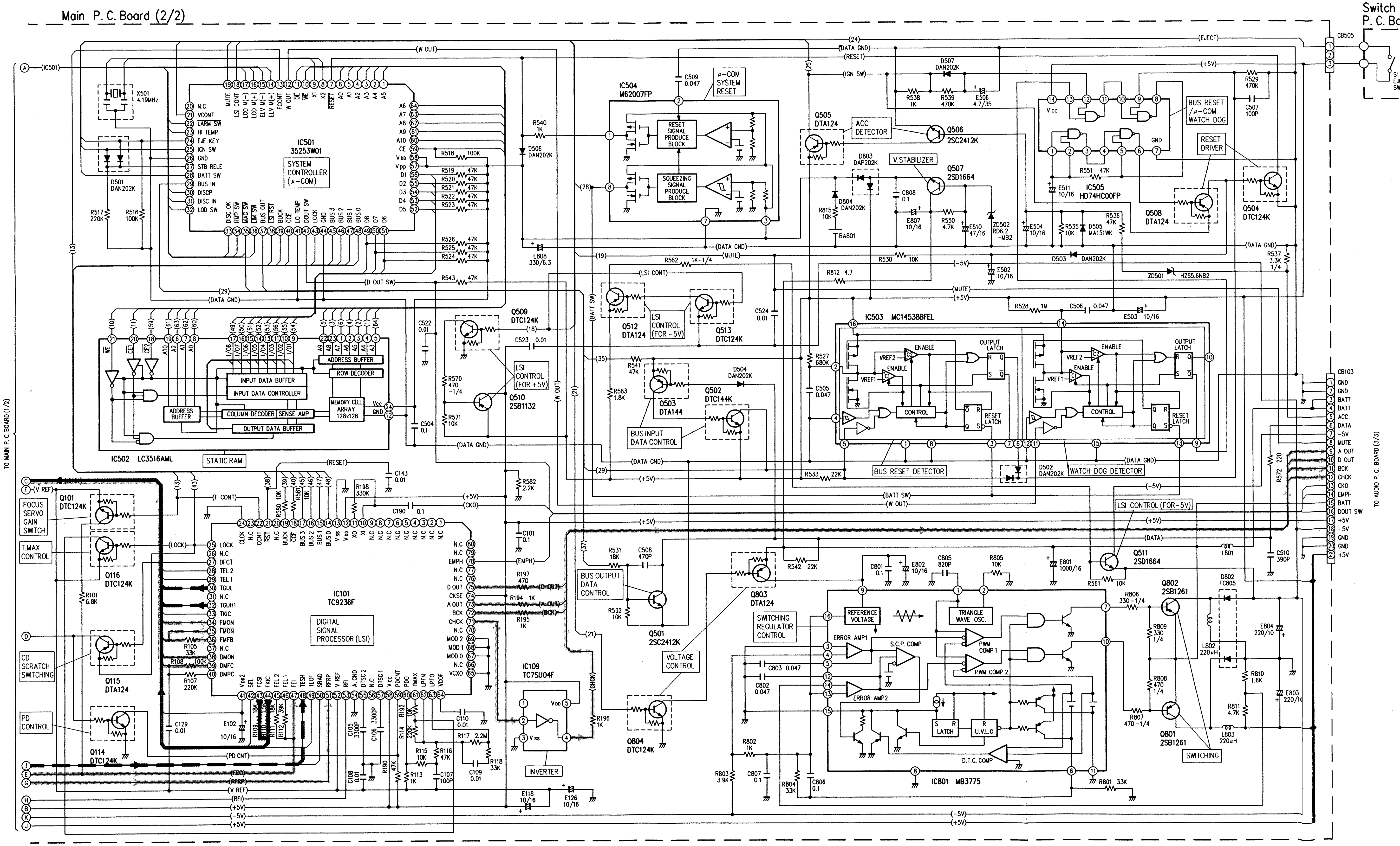
▨ CD Signal Line (Digital)
▬ Focus Servo Signal Line
▬ ▬ Tracking Servo Signal Line
▨ Spindle Servo Signal Line
▨ ▨ Sled Servo Signal Line

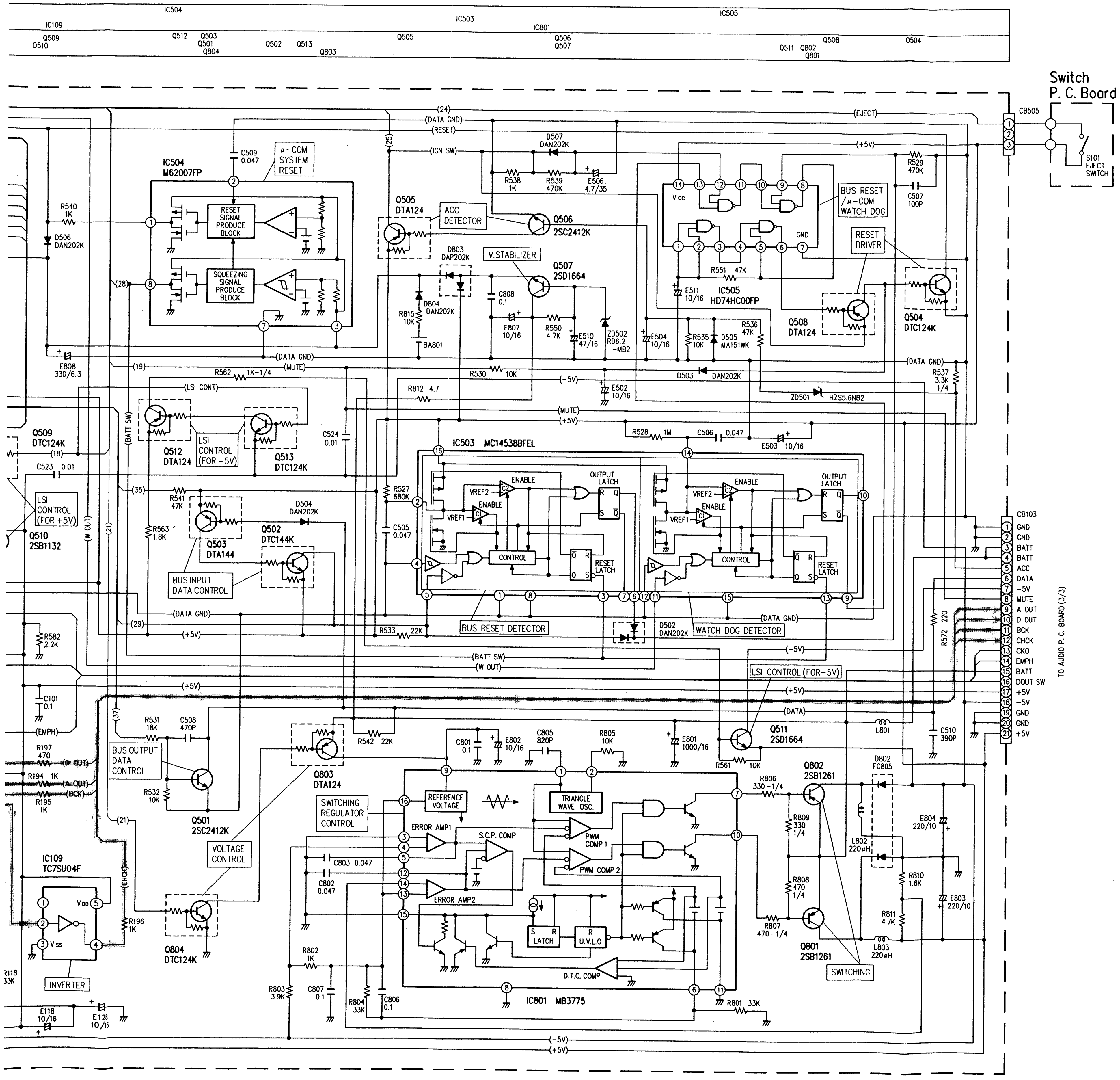
NOTES:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1,000,000}$

Schematic Diagram (2/3)

IC	IC502 IC501 IC101 IC109 IC504 IC503 IC801 IC505
Transistor (Q)	Q101 Q116 Q114 Q115 Q509 Q510 Q512 Q503 Q501 Q804 Q502 Q513 Q803 Q505 Q506 Q507 Q511 Q802 Q801 Q508 Q504


Main P. C. Board (2/2)
Switch P. C. Bo
CB505
(EJECT)
(24)
(DATA GND)
(RESET)
(IGN SW)
(+5V)
(W OUT)
(IC501)
X501 4.19MHz
D501 DAN202K
R517 220K
R516 100K
IC501 35253W01
SYSTEM CONTROLLER (μ-COM)
N.C
VCONT
LARM SW
HI TEMP
EJE KEY
IGN SW
GND
STB RELE
BATT SW
BUS IN
DISCP
DISC IN
LOD SW
MUTE
LSI CONT
LOD M(-)
LOD M(+)
ELV M(-)
ELV M(+)
FCONT
W OUT
CE
WE
X1
X2
RESET
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10
VDD
VPP
D1 D2 D3 D4 D5 D6 D7 D8
R518 100K
R519 47K
R520 47K
R521 47K
R522 47K
R523 47K
R526 47K
R525 47K
R524 47K
R543 47K
(D OUT SW)
R540 1K
D506 DAN202K
E808 330/6.3
IC504 M62007FP
C509 0.047
μ-COM SYSTEM RESET
RESET SIGNAL PRODUCE BLOCK
SQUEEZING SIGNAL PRODUCE BLOCK
(DATA GND)
(MUTE)
R562 1K-1/4
(LSI CONT)
Q505 DTA124
ACC DETECTOR
Q506 2SC2412K
D507 DAN202K
R538 1K
R539 470K
E506 4.7/35
D803 DAP202K
D804 DAN202K
R815 10K
BA801
V.STABILIZER
Q507 2SD1664
C808 0.1
E807 10/16
R550 4.7K
E510 47/16
ZD502 RD6.2 -MB2
R530 10K
(-5V)
E502 10/16
R812 4.7
IC505 HD74HC00FP
Vcc
GND
R551 47K
E511 10/16
E504 10/16
R535 10K
D505 MA151WK
R536 47K
BUS RESET /μ-COM WATCH DOG
RESET DRIVER
R529 470K
C507 100P
Q508 DTA124
Q504 DTC124K
R537 3.3K 1/4
D503 DAN202K
ZD501 HZS5.6NB2
(MUTE)
R528 1M
C506 0.047
E503 10/16
IC503 MC14538BFEL
ENABLE
VREF1
VREF2
OUTPUT LATCH
CONTROL
RESET LATCH
BUS RESET DETECTOR
WATCH DOG DETECTOR
D502 DAN202K
C524 0.01
R527 680K
C505 0.047
R533 22K
(29)
(DATA GND)
IC502 LC3516AML
STATIC RAM
WE CE1 CE2
ADDRESS BUFFER
INPUT DATA BUFFER
INPUT DATA CONTROLLER
ROW DECODER
COLUMN DECODER
SENSE AMP
MEMORY CELL ARRAY 128x128
OUTPUT DATA BUFFER
Vcc
GND
C504 0.1
C522 0.01
Q509 DTC124K
C523 0.01
R570 470 -1/4
R571 10K
LSI CONTROL (FOR +5V)
Q510 2SB1132
R582 2.2K
Q512 DTA124
LSI CONTROL (FOR -5V)
Q513 DTC124K
R541 47K
R563 1.8K
Q503 DTA144
D504 DAN202K
Q502 DTC144K
BUS INPUT DATA CONTROL
(BATT SW)
(W OUT)
(RESET)
C143 0.01
R198 330K
C190 0.1
(F CONT)
(CKO)
(LOCK)
(EMPH)
(D OUT)
(A OUT)
(BCK)
(CHCK)
FOCUS SERVO GAIN SWITCH
Q101 DTC124K
T.MAX CONTROL
Q116 DTC124K
R101 6.8K
CD SCRATCH SWITCHING
Q115 DTA124
PD CONTROL
Q114 DTC124K
(V REF)
IC101 TC9236F
DIGITAL SIGNAL PROCESSOR (LSI)
CLCK
LOCK
DFCT
TEL 2
TEL 1
TGUL
TGUH
TKIC
FMON
FMFB
DMON
DMFC
DMPC
N.C
EMPH
D OUT
CKSE
A OUT
BCK
CHCK
MOD 2
MOD 1
MOD 0
VCXO
R105 33K
R108 100K
R107 220K
C129 0.01
E102 10/16
R109
R110
R111
R112 39K
C105 3300P
C106 3300P
C108 0.01
R190
R114 47K
R192
R115 10K
R116 47K
R113 1K
C107 100P
C110 0.01
R117 2.2M
R118 33K
C109 0.01
(PD CNT)
(FEO)
(RFRP)
(RFI)
(+5V)
(-5V)
C101 0.1
R197 470
R194 1K
R195 1K
IC109 TC7SU04F
VDD
VSS
INVERTER
E118 10/16
E126 10/16
R196 1K
R531 18K
C508 470P
BUS OUTPUT DATA CONTROL
R532 10K
Q501 2SC2412K
R542 22K
Q803 DTA124
VOLTAGE CONTROL
Q804 DTC124K
C801 0.1
E802 10/16
C805 820P
R805 10K
E801 1000/16
Q511 2SD1664
R561 10K
LSI CONTROL (FOR-5V)
L801
C510 390P
SWITCHING REGULATOR CONTROL
REFERENCE VOLTAGE
TRIANGLE WAVE OSC.
ERROR AMP1
ERROR AMP2
S.C.P. COMP
PWM COMP 1
PWM COMP 2
LATCH
U.V.L.O
D.T.C. COMP
C803 0.047
C802 0.047
IC801 MB3775
R802 1K
R803 3.9K
C807 0.1
R804 33K
C806 0.1
R801 33K
R806 330-1/4
Q802 2SB1261
R809 330 1/4
R808 470 1/4
R807 470-1/4
Q801 2SB1261
SWITCHING
D802 FC805
L802 220μH
L803 220μH
E804 220/10
R810 1.6K
R811 4.7K
E803 220/10
R572 220
CB103
GND GND BATT BATT ACC DATA -5V MUTE A OUT D OUT BCK CHCK CKO EMPH BATT DOUT SW +5V -5V GND GND +5V
TO MAIN P. C. BOARD (1/2)
TO AUDIO P. C. BOARD (3/3)
A B C D E F G H I J K
1 2 3 4 5
A B C D E F G H


IC504
IC109
Q509
Q510
Q512
Q503
Q501
Q804
IC503
Q502
Q513
Q803
Q505
IC801
Q506
Q507
IC505
Q511
Q802
Q801
Q508
Q504
Switch
P. C. Board
CB505
S101
EJECT
SWITCH
IC504
M62007FP
μ-COM
SYSTEM
RESET
RESET SIGNAL PRODUCE BLOCK
SQUEEZING SIGNAL PRODUCE BLOCK
Q505
DTA124
ACC
DETECTOR
Q506
2SC2412K
V.STABILIZER
Q507
2SD1664
IC505
HD74HC00FP
BUS RESET
/μ-COM
WATCH DOG
RESET
DRIVER
Q508
DTA124
Q504
DTC124K
Q509
DTC124K
Q512
DTA124
LSI
CONTROL
(FOR -5V)
Q513
DTC124K
LSI
CONTROL
(FOR +5V)
Q510
2SB1132
Q503
DTA144
Q502
DTC144K
BUS INPUT
DATA CONTROL
IC503 MC14538BFEL
ENABLE
OUTPUT
LATCH
CONTROL
RESET
LATCH
BUS RESET DETECTOR
WATCH DOG DETECTOR
CB103
GND
GND
BATT
BATT
ACC
DATA
-5V
MUTE
A OUT
D OUT
BCK
CHCK
CKO
EMPH
BATT
DOUT SW
+5V
-5V
GND
GND
+5V
TO AUDIO P.C. BOARD (3/3)
LSI CONTROL (FOR-5V)
Q511
2SD1664
BUS OUTPUT
DATA
CONTROL
Q501
2SC2412K
Q803
DTA124
SWITCHING
REGULATOR
CONTROL
REFERENCE
VOLTAGE
TRIANGLE
WAVE OSC.
ERROR AMP1
S.C.P. COMP
PWM
COMP 1
PWM COMP 2
ERROR AMP2
LATCH
U.V.L.O
D.T.C. COMP
IC801 MB3775
Q802
2SB1261
Q801
2SB1261
SWITCHING
VOLTAGE
CONTROL
Q804
DTC124K
IC109
TC7SU04F
INVERTER
(DATA GND)
(RESET)
(IGN SW)
(EJECT)
(+5V)
(MUTE)
(LSI CONT)
(BATT SW)
(W OUT)
(D OUT)
(A OUT)
(BCK)
(CHCK)
(EMPH)
(DATA)
(-5V)

IC101

1	5.1V	17	PS	33	2V	49	2.1V	65	0V
2	5.1V	18	PS	34	2.1V	50	2.4V	66	0V
3	2.4V	19	PS	35	2.1V	51	2.3V	67	0V
4	1.7V	20	1.7V	36	2.1V	52	2.1V	68	0V
5	PS	21	5V	37	5.1V	53	2.5V	69	0V
6	2.4V	22	0V	38	2.1V	54	0V	70	2.6V
7	0.1V	23	0.1V	39	2.1V	55	2.5V	71	2.6V
8	PS	24	0V	40	2.4V	56	2.5V	72	2.5V
9	5.1V	25	5.1V	41	4.2V	57	2.5V	73	0V
10	2.4V	26	5.1V	42	5.1V	58	5.1V	74	5.1V
11	2.4V	27	5.1V	43	2.5V	59	5.1V	75	0V
12	5.1V	28	2.1V	44	2.5V	60	2V	76	5.1V
13	0V	29	2.1V	45	2.1V	61	2.1V	77	5.1V
14	PS	30	2.1V	46	2.1V	62	2.1V	78	0V
15	PS	31	0.3V	47	2.1V	63	2.3V	79	5.1V
16	PS	32	2.1V	48	2.1V	64	1.9V	80	2.2V

IC109

1	0V
2	2.5V
3	0V
4	2.6V
5	5.1V

IC501

1	0V	17	0V	33	0.1V	49	5V
2	0V	18	5V	34	0V	50	5V
3	0V	19	0V	35	0V	51	5V
4	0V	20	0V	36	5.1V	52	5V
5	0V	21	5V	37	PS	53	5V
6	5V	22	0V	38	5V	54	5V
7	5V	23	0V	39	PS	55	5V
8	2.7V	24	0V	40	PS	56	5V
9	2.6V	25	5.2V	41	0V	57	PS
10	5V	26	0V	42	0V	58	5V
11	5V	27	4.8V	43	5.1V	59	0V
12	PS	28	5V	44	0V	60	0V
13	0V	29	PS	45	PS	61	0V
14	0V	30	0V	46	PS	62	0V
15	0V	31	5V	47	PS	63	0V
16	0V	32	0.14V	48	PS	64	0V

IC504

1	5V
2	5V
3	5V
4	0V
5	0V
6	0V
7	0V
8	5V

IC502

1	5V	9	5V	17	5V
2	0V	10	5V	18	0V
3	0V	11	5V	19	0V
4	0V	12	0V	20	5V
5	0V	13	5V	21	5V
6	0V	14	5V	22	5V
7	0V	15	5V	23	0V
8	0V	16	5V	24	5V

IC503

1	0V	9	0V
2	5V	10	0V
3	5V	11	PS
4	0V	12	0V
5	5V	13	5V
6	5V	14	5V
7	5V	15	0V
8	0V	16	5V

IC505

1	0V	8	0V
2	0V	9	PS
3	5.2V	10	5.2V
4	5.2V	11	5.2V
5	0V	12	5V
6	5.2V	13	0V
7	0V	14	5.2V

IC801

1	5V	9	5V
2	0V	10	PS
3	0V	11	5V
4	0V	12	0V
5	0V	13	1.3V
6	0V	14	1.3V
7	PS	15	0V
8	0V	16	1.3V

	E	C	B
Q101	2.1V	2.1V	0V
Q114	0V	PS	PS
Q115	5.1V	0V	5.1V
Q116	2.1V	2.1V	4.9V
Q501	0V	PS	PS
Q502	0V	PS	PS
Q503	5.2V	PS	PS
Q504	0V	5V	0V
Q505	5.2V	5.1V	0V
Q506	0V	0V	0.6V
Q507	5.8V	13.1V	0V
Q508	5.2V	0V	5.2V
Q509	0V	0.1V	5V
Q510	5.2V	5.1V	4.4V
Q511	−5V	−4.9V	−4.3V
Q512	1.4V	−2.3V	0V
Q513	0V	0V	5V
Q801	13.7V	5.3V	13.3V
Q802	13.7V	0.1V	13.4V
Q803	13.6V	13.6V	0V
Q804	0V	0V	5V

(Measuring Conditions)

1.Power Supply Voltage :DC14V
2.Measuring Meter :Digital Multi Volt Meter
3.Measuring Point Reference :Between Ground
4.Measuring Conditions :Test Disc Play (A-BEX TCD-782 Track NO.2 1KHz)
Digital Output Switch (OFF)

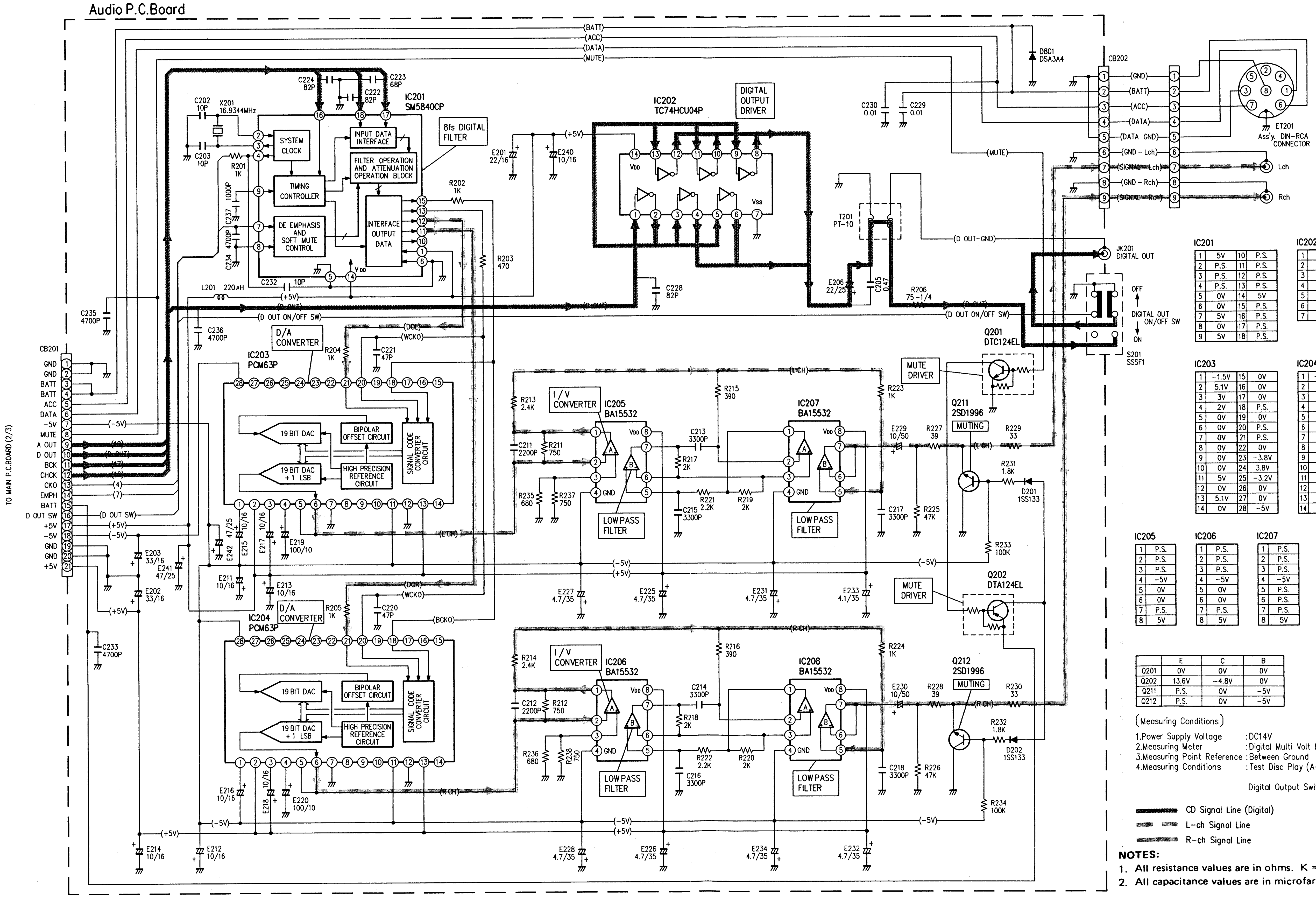
▨ CD Signal Line (Digital)
━ Focus Servo Signal Line
▬ ▬ Tracking Servo Signal Line
▨ Spindle Servo Signal Line
▨ ▨ Sled Servo Signal Line

NOTES:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1,000,000}$

Schematic Diagram (3/3)

IC	IC203 IC204	IC201	IC205 IC206	IC202	IC207 IC208		
Transistor(Q)						Q211 Q212	Q201 Q202



Audio P.C.Board
1
2
3
4
5
A
B
C
D
E
F
G
H
(BATT)
(ACC)
(DATA)
(MUTE)
D801
DSA3A4
CB202
(GND)
(BATT)
(ACC)
(DATA)
(DATA GND)
(GND - Lch)
(SIGNAL - Lch)
(GND - Rch)
(SIGNAL - Rch)
ET201
Ass'y. DIN-RCA CONNECTOR
Lch
Rch
C224 82P
C223 68P
C222 82P
C202 10P
X201 16.9344MHz
IC201
SM5840CP
SYSTEM CLOCK
INPUT DATA INTERFACE
FILTER OPERATION AND ATTENUATION OPERATION BLOCK
8fs DIGITAL FILTER
TIMING CONTROLLER
DE EMPHASIS AND SOFT MUTE CONTROL
INTERFACE OUTPUT DATA
C203 10P
R201 1K
C237 1000P
C234 4700P
C232 10P
L201 220μH
R202 1K
R203 470
(+5V)
(D OUT)
(D OUT ON/OFF SW)
C235 4700P
C236 4700P
E201 22/16
E240 10/16
IC202
TC74HCU04P
DIGITAL OUTPUT DRIVER
VDD
Vss
C228 82P
C230 0.01
C229 0.01
T201 PT-10
(D OUT-GND)
E206 22/25
C205 0.47
R206 75-1/4
JK201 DIGITAL OUT
OFF
DIGITAL OUT ON/OFF SW
ON
S201 SSSF1
Q201 DTC124EL
MUTE DRIVER
Q211 2SD1996
MUTING
Q202 DTA124EL
Q212 2SD1996
CB201
GND
GND
BATT
BATT
ACC
DATA
-5V
MUTE
A OUT
D OUT
BCK
CHCK
CKO
EMPH
BATT
D OUT SW
+5V
-5V
GND
GND
+5V
TO MAIN P.C.BOARD (2/3)
(-5V)
(D OUT SW)
(+5V)
(-5V)
D/A CONVERTER
IC203 PCM63P
IC204 PCM63P
R204 1K
R205 1K
C221 47P
C220 47P
(DOL)
(WCKO)
(DOR)
(BCKO)
19 BIT DAC
19 BIT DAC + 1 LSB
BIPOLAR OFFSET CIRCUIT
HIGH PRECISION REFERENCE CIRCUIT
SIGNAL CODE CONVERTER CIRCUIT
E203 33/16
E241 47/25
E202 33/16
E242 47/25
E215 10/16
E217 10/16
E219 100/10
E211 10/16
E213 10/16
C233 4700P
E216 10/16
E218 10/16
E220 100/10
E214 10/16
E212 10/16
(L CH)
(R CH)
I/V CONVERTER
IC205 BA15532
IC206 BA15532
IC207 BA15532
IC208 BA15532
LOW PASS FILTER
R213 2.4K
R214 2.4K
C211 2200P
C212 2200P
R211 750
R212 750
R235 680
R236 680
R237 750
R238 750
R215 390
R216 390
C213 3300P
C214 3300P
R217 2K
R218 2K
C215 3300P
C216 3300P
R221 2.2K
R222 2.2K
R219 2K
R220 2K
R223 1K
R224 1K
E229 10/50
E230 10/50
R227 39
R228 39
R229 33
R230 33
R231 1.8K
R232 1.8K
D201 1SS133
D202 1SS133
C217 3300P
C218 3300P
R225 47K
R226 47K
R233 100K
R234 100K
E227 4.7/35
E225 4.7/35
E231 4.7/35
E233 4.1/35
E228 4.7/35
E226 4.7/35
E234 4.7/35
E232 4.7/35

IC201

1	5V	10	P.S.
2	P.S.	11	P.S.
3	P.S.	12	P.S.
4	P.S.	13	P.S.
5	0V	14	5V
6	0V	15	P.S.
7	5V	16	P.S.
8	0V	17	P.S.
9	5V	18	P.S.

IC202

1	0V	8	0V
2	5.1V	9	5.1V
3	5.1V	10	0V
4	0V	11	5.1V
5	5.1V	12	0V
6	0V	13	5.1V
7	0V	14	5.1V

IC203

1	−1.5V	15	0V
2	5.1V	16	0V
3	3V	17	0V
4	2V	18	P.S.
5	0V	19	0V
6	0V	20	P.S.
7	0V	21	P.S.
8	0V	22	0V
9	0V	23	−3.8V
10	0V	24	3.8V
11	5V	25	−3.2V
12	0V	26	0V
13	5.1V	27	0V
14	0V	28	−5V

IC204

1	−1.5V	15	0V
2	5.1V	16	0V
3	3V	17	0V
4	2V	18	P.S.
5	0V	19	0V
6	0V	20	P.S.
7	0V	21	P.S.
8	0V	22	0V
9	0V	23	−3.8V
10	0V	24	3.8V
11	−5V	25	−3.2V
12	0V	26	0V
13	5.1V	27	0V
14	0V	28	−5V

IC205

1	P.S.
2	P.S.
3	P.S.
4	−5V
5	0V
6	0V
7	P.S.
8	5V

IC206

1	P.S.
2	P.S.
3	P.S.
4	−5V
5	0V
6	0V
7	P.S.
8	5V

IC207

1	P.S.
2	P.S.
3	P.S.
4	−5V
5	P.S.
6	P.S.
7	P.S.
8	5V

IC208

1	P.S.
2	P.S.
3	P.S.
4	−5V
5	P.S.
6	P.S.
7	P.S.
8	5V

	E	C	B
Q201	0V	0V	0V
Q202	13.6V	−4.8V	0V
Q211	P.S.	0V	−5V
Q212	P.S.	0V	−5V

(Measuring Conditions)

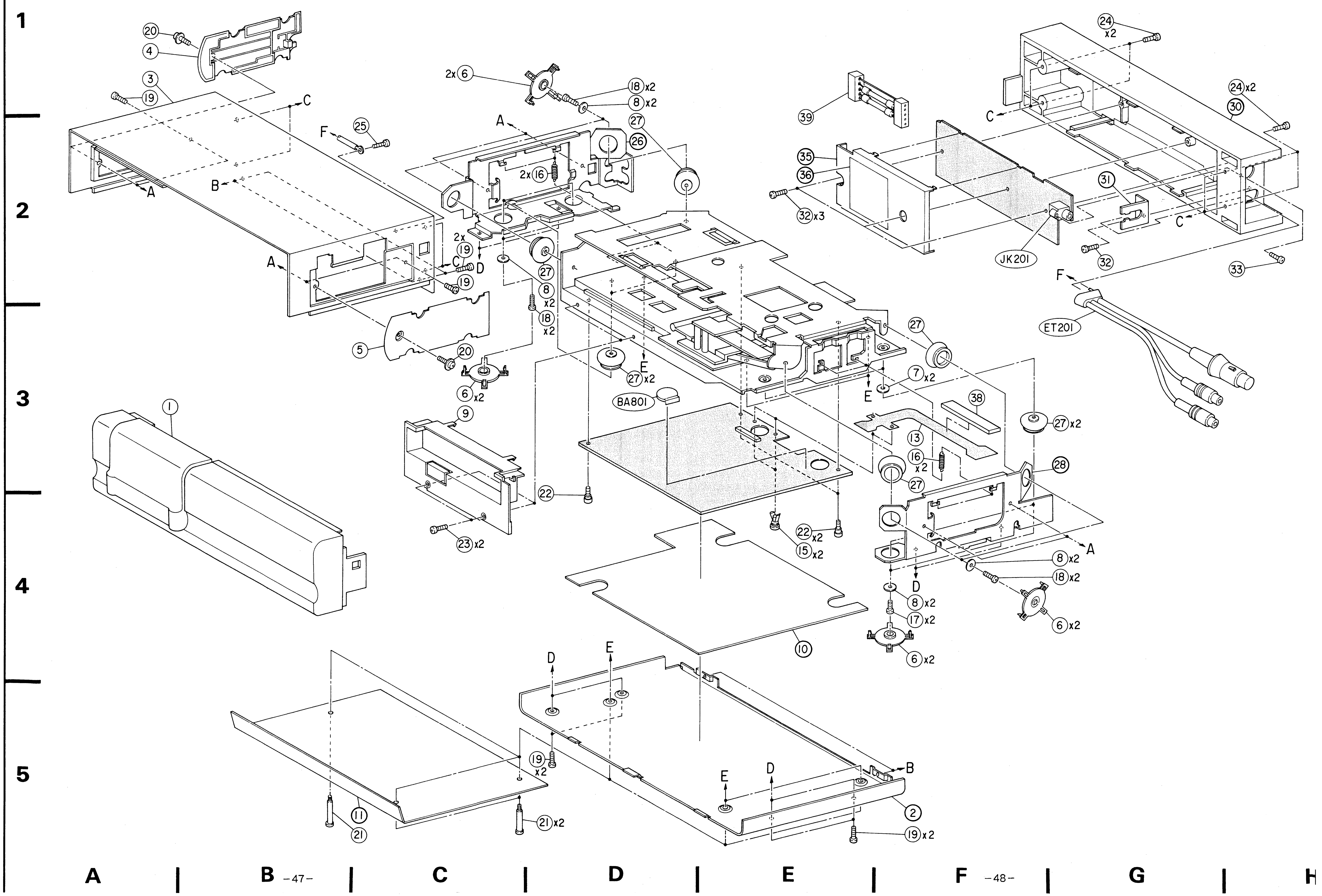
1.Power Supply Voltage :DC14V
2.Measuring Meter :Digital Multi Volt Meter
3.Measuring Point Reference :Between Ground
4.Measuring Conditions :Test Disc Play (A-BEX TCD-782 Track NO.2 1KHz)
Digital Output Switch (OFF)

▬ CD Signal Line (Digital)
▬ ▬ L-ch Signal Line
▬ R-ch Signal Line

NOTES:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1,000,000}$

Exploded View (Cabinet)

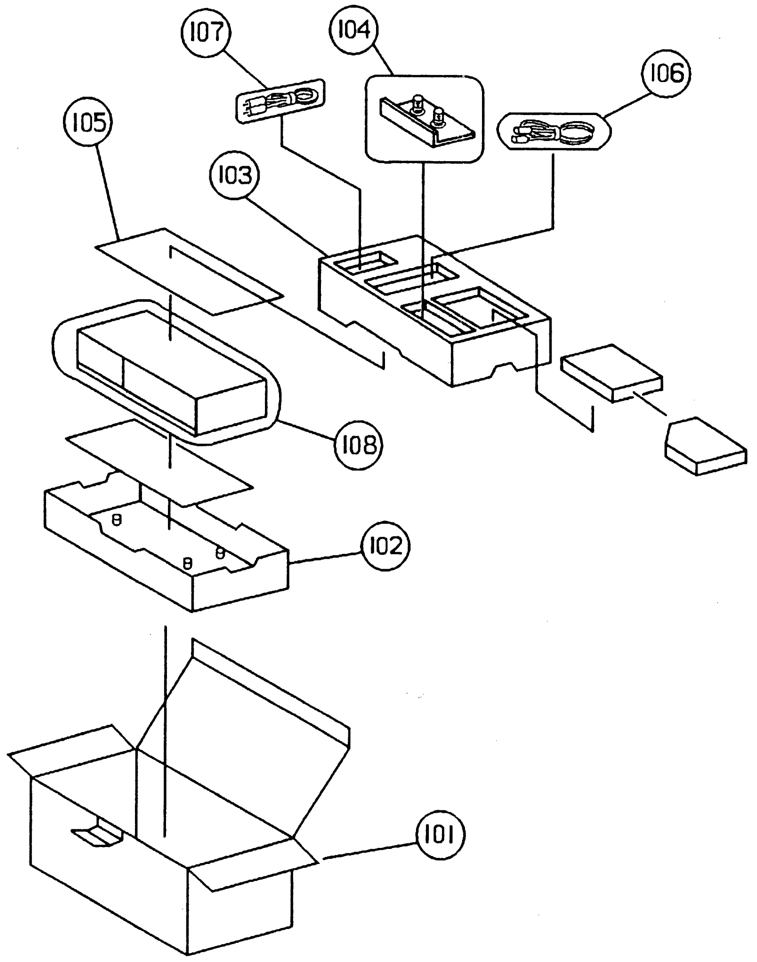

1
2
3
4
5
A
B
C
D
E
F
G
H
⑳
④
③
⑲
C
A
B
A
C
D
⑲
2x ⑲
⑤
⑳
⑥x2
⑨
㉓x2
①
F
㉕
2x ⑥
⑱x2
⑧x2
A
2x ⑯
㉖
㉗
㉗
⑧ x2
⑱ x2
㉗x2
E
BA801
㉒
㉒x2
⑮x2
⑩
㉗
⑦x2
E
㊳
⑬
⑯ x2
㉗
㉗x2
㉘
A
⑧x2
⑱x2
D
⑧x2
⑰x2
⑥x2
⑥x2
㊴
㉟
㊱
㉜x3
JK201
㉛
C
㉜
㉝
㉔ x2
㉔x2
㉚
C
F
ET201
D
E
⑲ x2
E
D
B
②
⑲x2
⑪
㉑
㉑x2

Packing Assembly Parts List

Symbol No.	Part No.	Description
101	56S30003W28	Carton, Packing (Individual)
102	56D30917W01	Tray, Packing (L)
103	56D30917W02	Tray, Packing (R)
104	01V33500W17	Assy., Kit Installation
104-1	03D40121T46	Bolt, Hex. W/Double Washer (M4 × 6)
104-2	02B47353F06	Nut, Hex. Flange (M6)
104-3	03B90962F03	Bolt, Hex. Flange (M6 × 50)
104-4	02A44071U02	Wing, Nut (M6)
104-5	04S40071G22	Washer, Spring Lock (M6.1)
104-6	07B22460W01	Bracket, Side (L)
104-7	07B22460W02	Bracket, Side (R)
104-8	07A13484W02	Bracket, Mounting Base
104-9	07B31413W01	Bracket, Side

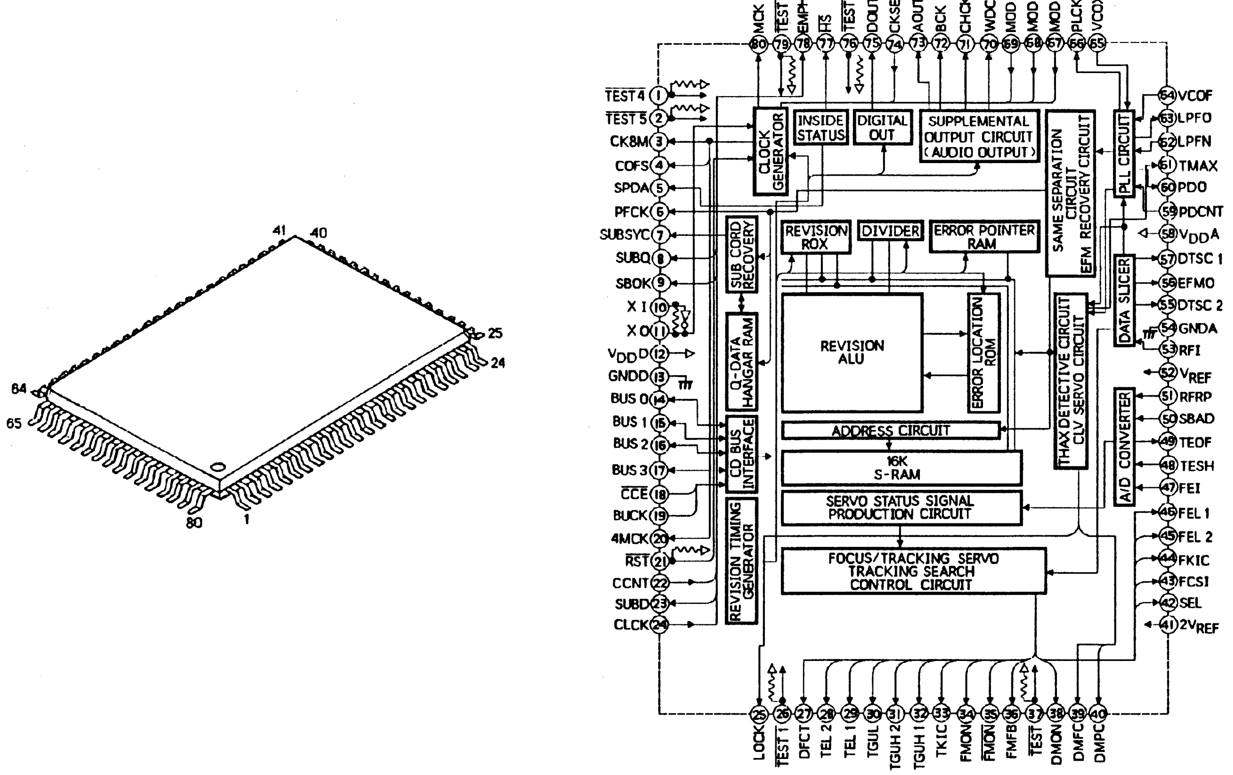
Symbol No.	Part No.	Description
105	68P22493W72	Owner's Manual
106	01T15904W02	Assy., DIN Connector (5m)
or	01T15904W01	Assy., DIN Connector (5.5m)
107	28T35041W01	Assy., RCA Cable (5.5m)
108	56C40990T19	Sack, Polyethylene

Packing Method View

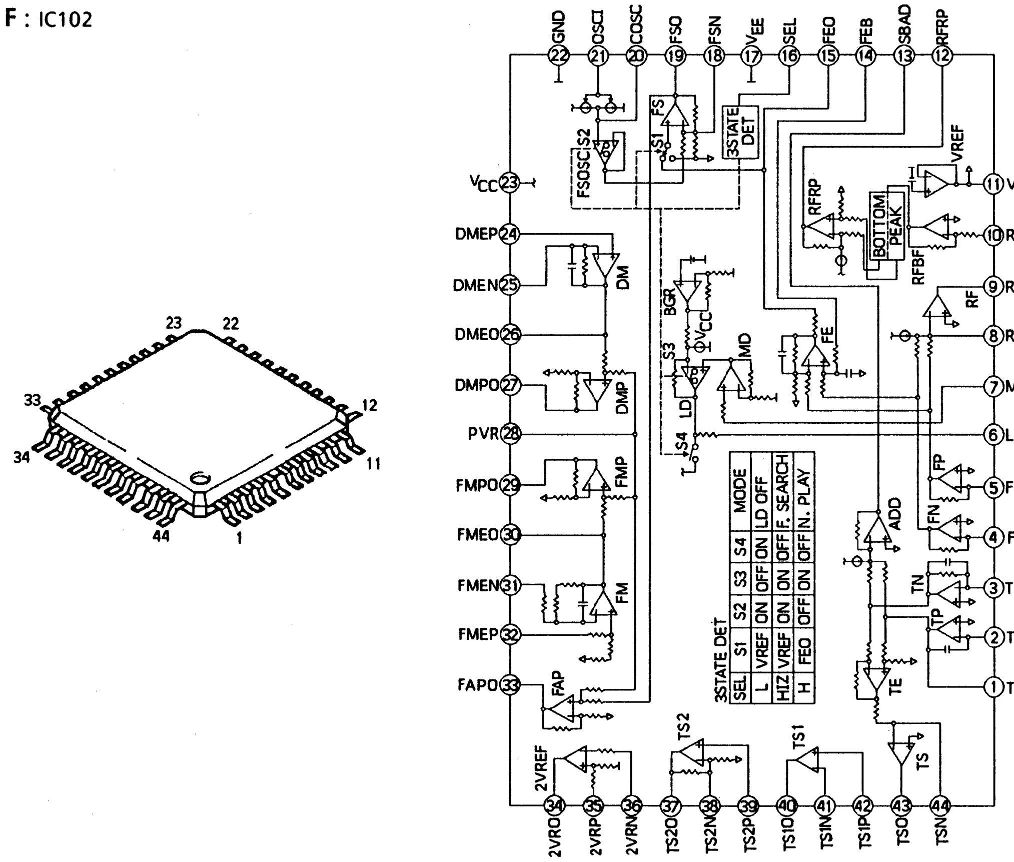

107
104
106
105
103
108
102
101

Semi - Conductor Lead Identifications

TC9236F : IC101


41
40
25
24
64
65
80
1
TEST4 ①
TEST5 ②
CK8M ③
COFS ④
SPDA ⑤
PFCK ⑥
SUBSYC ⑦
SUBQ ⑧
SBOK ⑨
X I ⑩
X O ⑪
VDDD ⑫
GNDD ⑬
BUS 0 ⑭
BUS 1 ⑮
BUS 2 ⑯
BUS 3 ⑰
CCE ⑱
BUCK ⑲
4MCK ⑳
RST ㉑
CCNT ㉒
SUBD ㉓
CLCK ㉔
LOCK ㉕
TEST1 ㉖
DFCT ㉗
TEL 2 ㉘
TEL 1 ㉙
TGUL ㉚
TGUH 2 ㉛
TGUH 1 ㉜
TKIC ㉝
FMON ㉞
FMON ㉟
FMFB ㊱
TEST ㊲
DMON ㊳
DMFC ㊴
DMPC ㊵
㊶ 2VREF
㊷ SEL
㊸ FCSI
㊹ FKIC
㊺ FEL 2
㊻ FEL 1
㊼ FEI
㊽ TESH
㊾ TEOF
㊿ SBAD
(51) RFRP
(52) VREF
(53) RFI
(54) GNDA
(55) DTSC 2
(56) EFMO
(57) DTSC 1
(58) VDDA
(59) PDCNT
(60) PDO
(61) TMAX
(62) LPFN
(63) LPFO
(64) VCOF
(65) VCOX
(66) PLCK
(67) MOD 0
(68) MOD 1
(69) MOD 2
(70) WDCK
(71) CHCK
(72) BCK
(73) AOUT
(74) CKSE
(75) DOUT
(76) TEST2
(77) FS
(78) EMPH
(79) TEST3
(80) MCK
CLOCK GENERATOR
INSIDE STATUS
DIGITAL OUT
SUPPLEMENTAL OUTPUT CIRCUIT ‹AUDIO OUTPUT›
SAME SEPARATION CIRCUIT
EFM RECOVERY CIRCUIT
PLL CIRCUIT
SUB CORD RECOVERY
REVISION ROX
DIVIDER
ERROR POINTER RAM
Q-DATA HANGAR RAM
REVISION ALU
ERROR LOCATION ROM
THAX DETECTIVE CIRCUIT
CLV SERVO CIRCUIT
DATA SLICER
CD BUS INTERFACE
ADDRESS CIRCUIT
16K S-RAM
SERVO STATUS SIGNAL PRODUCTION CIRCUIT
A/D CONVERTER
REVISION TIMING GENERATOR
FOCUS/TRACKING SERVO TRACKING SEARCH CONTROL CIRCUIT

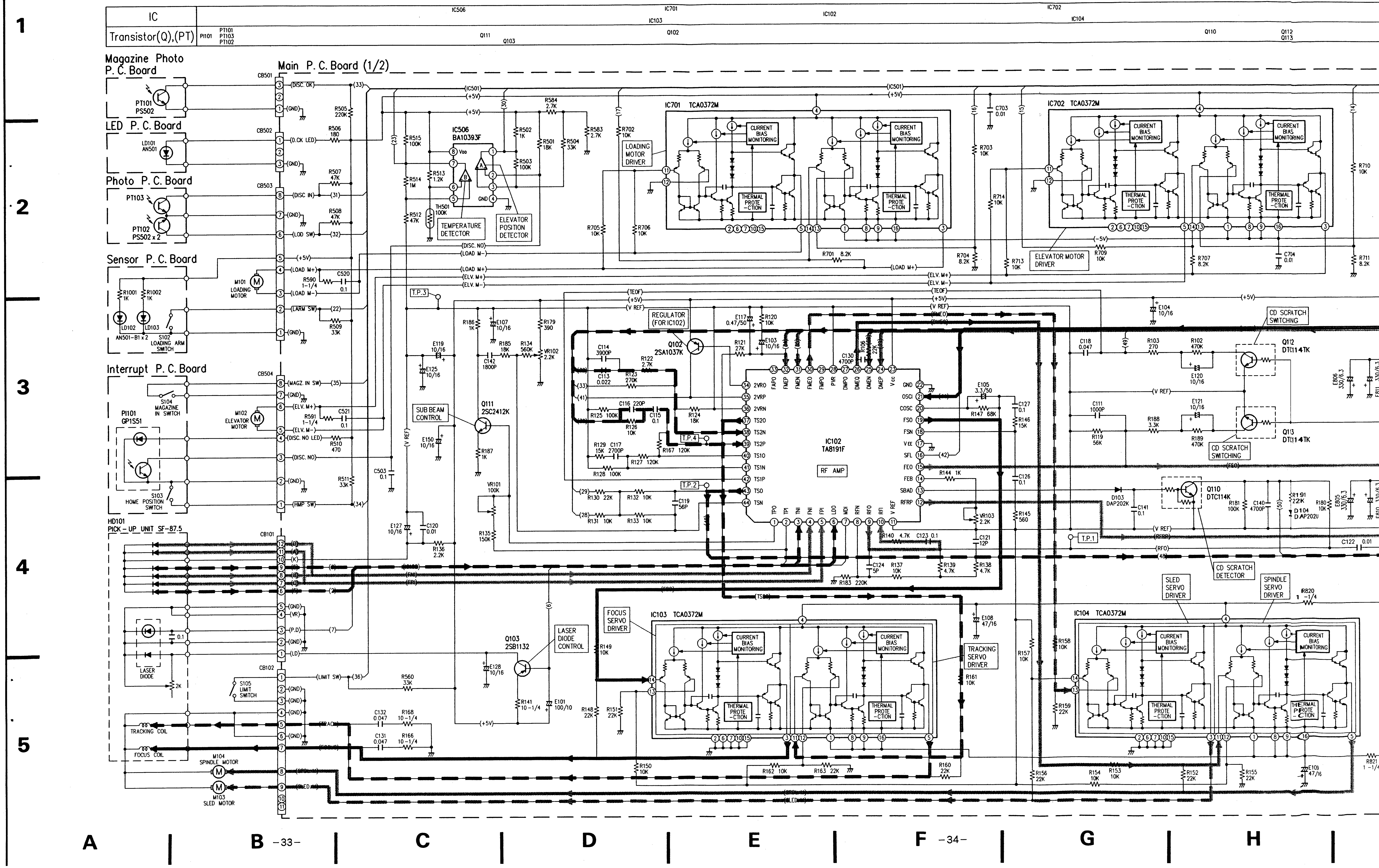
TA8191F : IC102

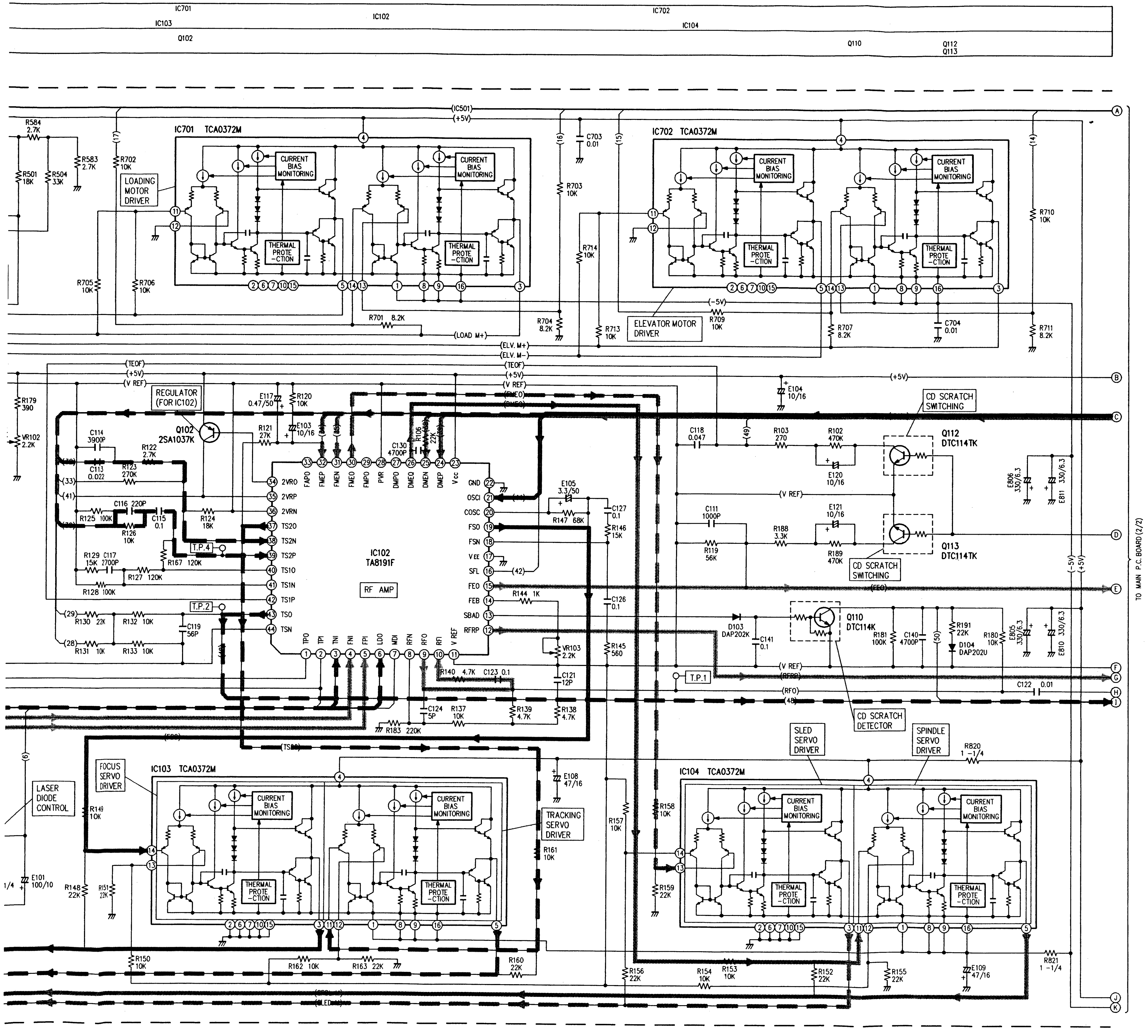

23
22
33
12
34
11
44
1
GND ㉒
OSCI ㉑
CDSC ⑳
FSO ⑲
FSN ⑱
VEE ⑰
SEL ⑯
FEO ⑮
FEB ⑭
SBAD ⑬
RFRP ⑫
VCC ㉓
DMEP ㉔
DMEN ㉕
DMEO ㉖
DMPO ㉗
PVR ㉘
FMPO ㉙
FMEO ㉚
FMEN ㉛
FMEP ㉜
FAPO ㉝
⑪ VREF
⑩ RFI
⑨ RFO
⑧ RFN
⑦ MDI
⑥ LDO
⑤ FPI
④ FNI
③ TNI
② TPI
① TPO
2VRO ㉞
2VRP ㉟
2VRN ㊱
TS2O ㊲
TS2N ㊳
TS2P ㊴
TS1O ㊵
TS1N ㊶
TS1P ㊷
TSO ㊸
TSN ㊹
FSOSC
S2
S1
FS
3STATE DET
VREF
RFRP
BOTTOM PEAK
RFBF
RF
DM
BGR
S3
VCC
MD
FE
LD
S4
DMP
FMP
FM
FP
ADD
FN
TN
TP
TE
FAP
2VREF
TS2
TS1
TS

3STATE DET

SEL	S1	S2	S3	S4	MODE
L	VREF	ON	OFF	ON	LD OFF
HIZ	VREF	ON	ON	OFF	F. SEARCH
H	FEO	OFF	ON	OFF	N. PLAY

Schematic Diagram (1/3)


IC
Transistor(Q),(PT)
IC506
IC701
IC103
IC102
IC702
IC104
PI101
PT101
PT103
PT102
Q111
Q103
Q102
Q110
Q112
Q113
Magazine Photo P. C. Board
PT101 PS502
LED P. C. Board
LD101 AN501
Photo P. C. Board
PT103
PT102 PS502 x 2
Sensor P. C. Board
R1001 1K
R1002 1K
LD102
LD103
AN501-B1 x 2
S102 LOADING ARM SWITCH
M101 LOADING MOTOR
Interrupt P. C. Board
S104 MAGAZINE IN SWITCH
PI101 GP1S51
M102 ELEVATOR MOTOR
S103 HOME POSITION SWITCH
HD101 PICK-UP UNIT SF-87.5
LASER DIODE
S105 LIMIT SWITCH
TRACKING COIL
FOCUS COIL
M104 SPINDLE MOTOR
M103 SLED MOTOR
Main P. C. Board (1/2)
CB501
CB502
CB503
CB504
CB101
CB102
(DISC OK)
(GND)
(D.CK LED)
(DISC IN)
(LOD SW)
(+5V)
(LOAD M+)
(LOAD M-)
(LARM SW)
(MAGZ. IN SW)
(ELV. M+)
(ELV. M-)
(DISC. NO LED)
(DISC. NO)
(HMP SW)
(LIMIT SW)
(IC501)
(DISC. NO)
IC506 BA10393F
TEMPERATURE DETECTOR
ELEVATOR POSITION DETECTOR
TH501 100K
IC701 TCA0372M
LOADING MOTOR DRIVER
IC702 TCA0372M
ELEVATOR MOTOR DRIVER
CURRENT BIAS MONITORING
THERMAL PROTE -CTION
T.P.3
T.P.4
T.P.2
T.P.1
REGULATOR (FOR IC102)
Q102 2SA1037K
SUB BEAM CONTROL
Q111 2SC2412K
IC102 TA8191F
RF AMP
(TEOF)
(V REF)
(FEO)
(RFO)
(RFRP)
(TSO)
Q112 DTC114TK
Q113 DTC114TK
CD SCRATCH SWITCHING
Q110 DTC114K
D103 DAP202K
D104 DAP202U
CD SCRATCH DETECTOR
LASER DIODE CONTROL
Q103 2SB1132
FOCUS SERVO DRIVER
IC103 TCA0372M
TRACKING SERVO DRIVER
SLED SERVO DRIVER
SPINDLE SERVO DRIVER
IC104 TCA0372M
1
2
3
4
5
A
B
C
D
E
F
G
H


IC701
IC103
Q102
IC102
IC702
IC104
Q110
Q112
Q113
IC701 TCA0372M
LOADING MOTOR DRIVER
IC702 TCA0372M
ELEVATOR MOTOR DRIVER
CURRENT BIAS MONITORING
THERMAL PROTE-CTION
REGULATOR (FOR IC102)
Q102 2SA1037K
IC102 TA8191F
RF AMP
CD SCRATCH SWITCHING
Q112 DTC114TK
Q113 DTC114TK
Q110 DTC114K
CD SCRATCH DETECTOR
IC103 TCA0372M
FOCUS SERVO DRIVER
TRACKING SERVO DRIVER
LASER DIODE CONTROL
IC104 TCA0372M
SLED SERVO DRIVER
SPINDLE SERVO DRIVER
T.P.1
T.P.2
T.P.4
TO MAIN P.C. BOARD (2/2)
(LOAD M+)
(ELV. M+)
(ELV. M-)
(TEOF)
(+5V)
(V REF)
(RFO)
(IC501)

IC102

1	1.8V	11	2.1V	21	2.5V	31	2.1V	41	2.1V
2	2.1V	12	2.3V	22	0V	32	2.1V	42	2.1V
3	2.1V	13	2.4V	23	5.1V	33	2.1V	43	2.1V
4	2.1V	14	2.1V	24	2.2V	34	4.5V	44	2.1V
5	2.1V	15	2.1V	25	2.2V	35	4.2V		
6	PS	16	5.1V	26	PS	36	2.1V		
7	PS	17	0V	27	PS	37	2.1V		
8	PS	18	2.1V	28	2.1V	38	2.1V		
9	PS	19	2.1V	29	PS	39	2.1V		
10	PS	20	2.1V	30	PS	40	2.1V		

IC103

1	−5V	9	−5V
2	0V	10	0V
3	PS	11	0V
4	5.1V	12	0V
5	PS	13	1.5V
6	0V	14	1.5V
7	0V	15	0V
8	−5V	16	0V

IC104

1	−5V	9	−5V
2	0V	10	0V
3	PS	11	1.5V
4	5.1V	12	PS
5	PS	13	0V
6	0V	14	1.5V
7	0V	15	0V
8	−5V	16	0.2V

IC506

1	0V
2	5.1V
3	1.6V
4	0V
5	2V
6	5V
7	0V
8	5.1V

IC701

1	0.2V	9	0.2V
2	0V	10	0V
3	0.7V	11	0.7V
4	1.3V	12	0V
5	0.7V	13	0V
6	0V	14	0.4V
7	0V	15	0V
8	0.2V	16	0.2V

IC702

1	−5V	9	0.2V
2	0V	10	0V
3	0.7V	11	0.7V
4	1.2V	12	0V
5	0.7V	13	0V
6	0V	14	0.4V
7	0V	15	0V
8	0.2V	16	0.2V

	E	C	B
Q102	5.1V	4.2V	4.5V
Q103	5.1V	0V	4.7V
Q110	2.1V	2.4V	2.2V
Q111	1.2V	1.2V	1.8V
Q112	2.1V	2.1V	0V
Q113	2.1V	2.1V	0V

(Measuring Conditions)

1.Power Supply Voltage :DC14V
2.Measuring Meter :Digital Multi Volt Meter
3.Measuring Point Reference :Between Ground
4.Measuring Conditions :Test Disc Play (A-BEX TCD-782 Track NO.2 1KHz)
Digital Output Switch (OFF)

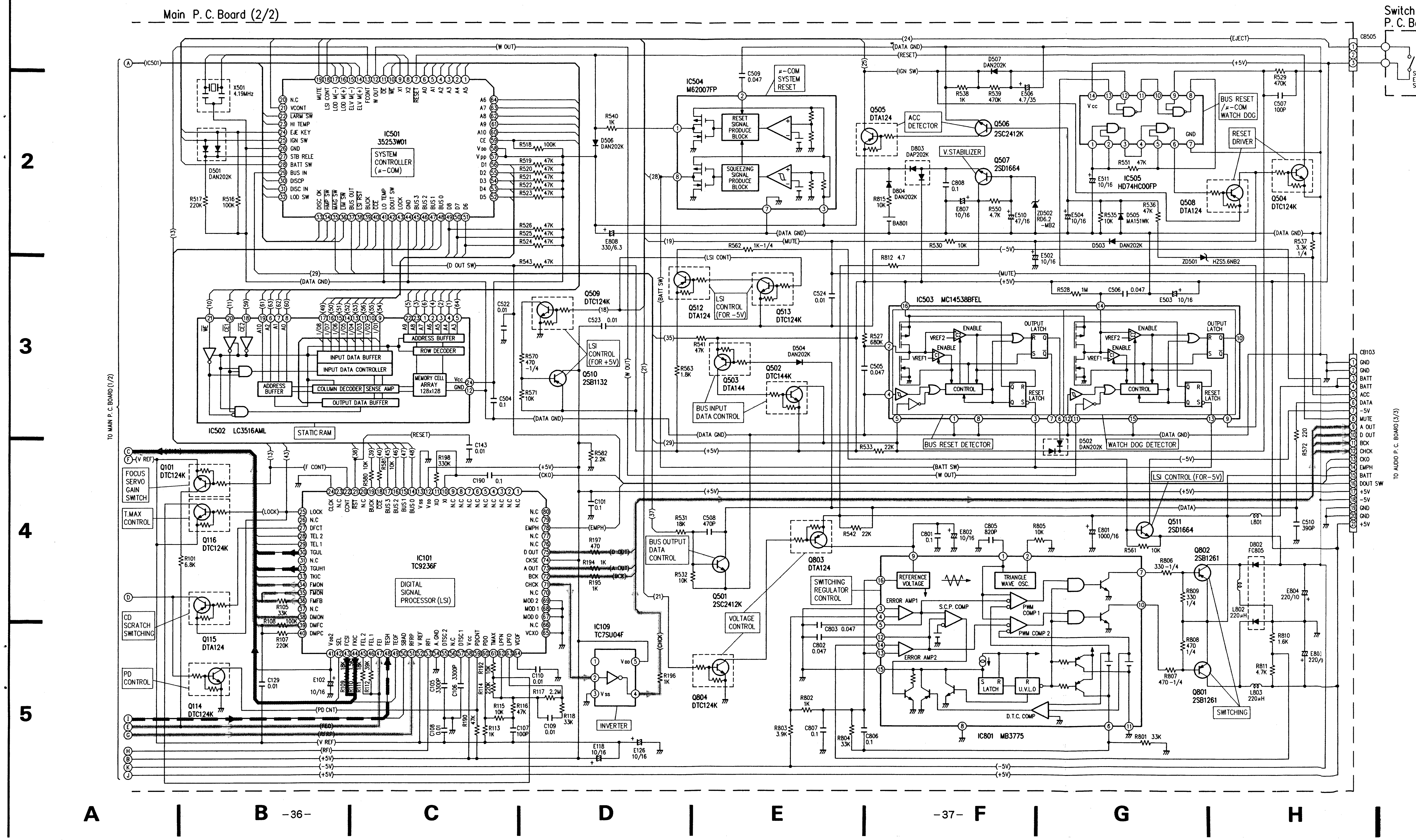
▬ CD Signal Line (Digital)
▬ Focus Servo Signal Line
▬ ▬ Tracking Servo Signal Line
▬ Spindle Servo Signal Line
▬ ▬ Sled Servo Signal Line

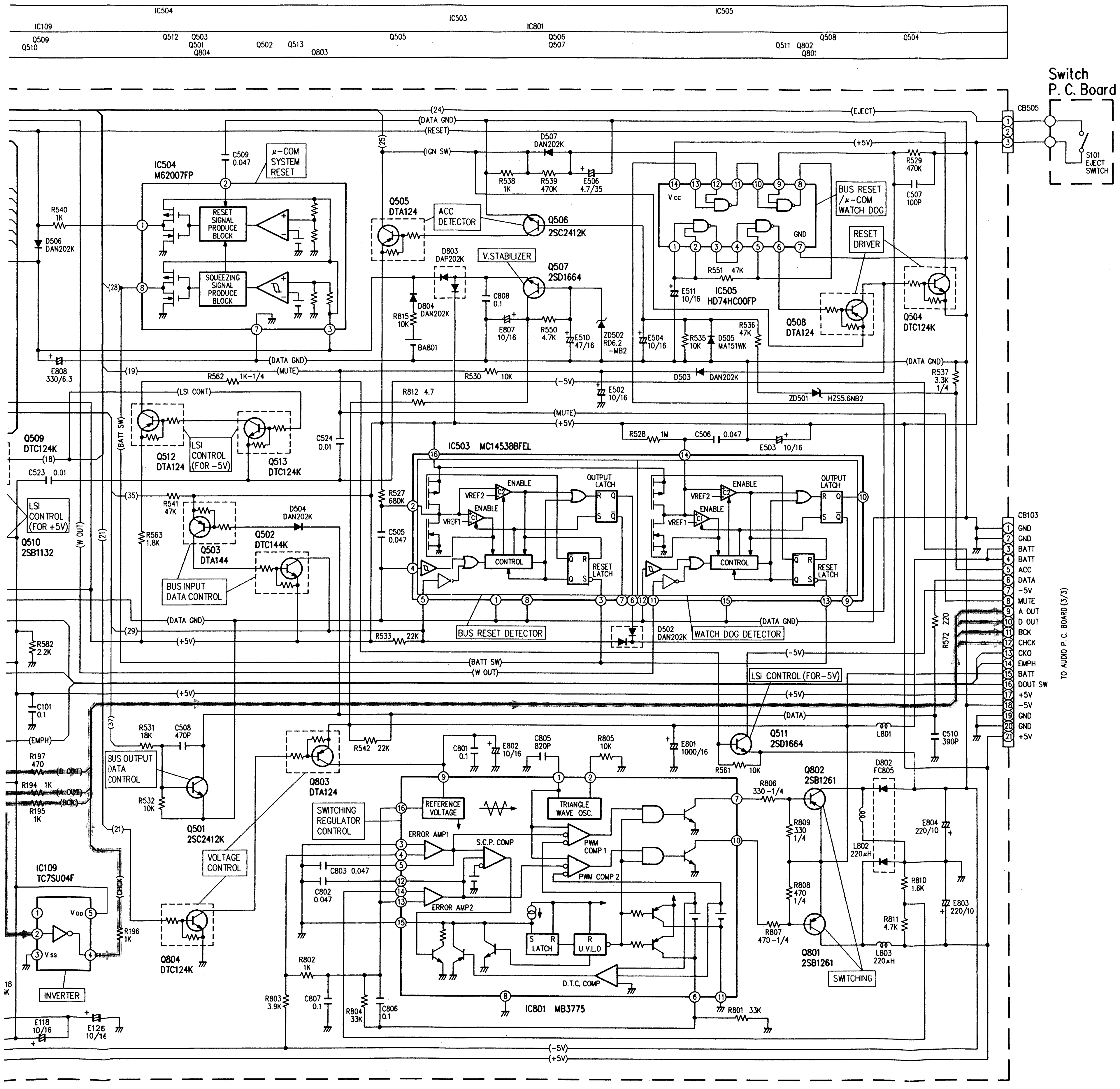
NOTES:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. P = $\frac{1}{1,000,000}$

Schematic Diagram (2/3)

IC	IC502 IC501 IC101 IC109 IC504 IC503 IC801 IC505
Transistor (Q)	Q101 Q116 Q114 Q115 Q509 Q510 Q512 Q503 Q501 Q804 Q502 Q513 Q803 Q505 Q506 Q507 Q511 Q802 Q801 Q508 Q504


1
2
3
4
5
A
B
C
D
E
F
G
H
Main P. C. Board (2/2)
Switch P. C. B
TO MAIN P. C. BOARD (1/2)
TO AUDIO P. C. BOARD (3/3)
IC501 35253W01
SYSTEM CONTROLLER (μ-COM)
X501 4.19MHz
D501 DAN202K
R517 220K
R516 100K
N.C
VCONT
LARM SW
HI TEMP
EJE KEY
IGN SW
GND
STB RELE
BATT SW
BUS IN
DISCP
DISC IN
LOD SW
MUTE
LSI CONT
LOD M(-)
LOD M(+)
ELV M(-)
ELV M(+)
FCONT
W OUT
OE
WE
X1
X2
RESET
DISC OK
HMP SW
MAG SW
LIM SW
BUS OUT
LSI RST
BUCK
CCE
LO TEMP
DOUT SW
LOCK
GND
BUS 3
BUS 2
BUS 1
BUS 0
R518 100K
R519 47K
R520 47K
R521 47K
R522 47K
R523 47K
R526 47K
R525 47K
R524 47K
R543 47K
(W OUT)
(D OUT SW)
(DATA GND)
(29)
(13)
R540 1K
D506 DAN202K
E808 330/6.3
IC502 LC3516AML
STATIC RAM
ADDRESS BUFFER
INPUT DATA BUFFER
INPUT DATA CONTROLLER
ROW DECODER
MEMORY CELL ARRAY 128x128
ADDRESS BUFFER
COLUMN DECODER
SENSE AMP
OUTPUT DATA BUFFER
C522 0.01
C504 0.1
Q509 DTC124K
Q510 2SB1132
R570 470 -1/4
R571 10K
C523 0.01
LSI CONTROL (FOR +5V)
IC504 M62007FP
C509 0.047
μ-COM SYSTEM RESET
RESET SIGNAL PRODUCE BLOCK
SQUEEZING SIGNAL PRODUCE BLOCK
(24)
(DATA GND)
(RESET)
(IGN SW)
(EJECT)
(+5V)
(MUTE)
(19)
(28)
(25)
R562 1K-1/4
(LSI CONT)
Q512 DTA124
LSI CONTROL (FOR -5V)
Q513 DTC124K
C524 0.01
(35)
R541 47K
R563 1.8K
Q503 DTA144
D504 DAN202K
Q502 DTC144K
BUS INPUT DATA CONTROL
(BATT SW)
(W OUT)
Q505 DTA124
ACC DETECTOR
Q506 2SC2412K
D803 DAP202K
V.STABILIZER
Q507 2SD1664
D804 DAN202K
R815 10K
BA801
C808 0.1
E807 10/16
R550 4.7K
E510 47/16
ZD502 RD6.2-MB2
R538 1K
R539 470K
D507 DAN202K
E506 4.7/35
R530 10K
(-5V)
E502 10/16
R812 4.7
R527 680K
C505 0.047
R533 22K
IC503 MC14538BFEL
VREF2
VREF1
ENABLE
OUTPUT LATCH
CONTROL
RESET LATCH
BUS RESET DETECTOR
WATCH DOG DETECTOR
D502 DAN202K
R528 1M
C506 0.047
E503 10/16
IC505 HD74HC00FP
BUS RESET /μ-COM WATCH DOG
RESET DRIVER
R529 470K
C507 100P
R551 47K
E511 10/16
E504 10/16
R535 10K
D505 MA151WK
R536 47K
Q508 DTA124
Q504 DTC124K
D503 DAN202K
ZD501 HZS5.6NB2
R537 3.3K 1/4
CB505
CB103
GND
GND
BATT
BATT
ACC
DATA
-5V
MUTE
A OUT
D OUT
BCK
CHCK
CKO
EMPH
BATT
DOUT SW
+5V
-5V
GND
GND
+5V
R572 220
IC101 TC9236F
DIGITAL SIGNAL PROCESSOR (LSI)
FOCUS SERVO GAIN SWITCH
Q101 DTC124K
T.MAX CONTROL
Q116 DTC124K
R101 6.8K
CD SCRATCH SWITCHING
Q115 DTA124
PD CONTROL
Q114 DTC124K
(V REF)
(F CONT)
(LOCK)
(RESET)
(CKO)
(EMPH)
(D OUT)
(A OUT)
(BCK)
(CHCK)
(DATA)
(PD CNT)
(FEO)
(RFRP)
(RFI)
R198 330K
C143 0.01
C190 0.1
R580 10K
R581 10K
R105 33K
R108 100K
R107 220K
C129 0.01
E102 10/16
R109 18K
R110 39K
R111 39K
R112 39K
C105 3300P
C106 3300P
C108 0.01
R190
R192 220K
R114
R115 10K
R116 47K
R113 1K
C107 100P
C110 0.01
R117 2.2M
R118 33K
C109 0.01
R197 470
R194 1K
R195 1K
R582 2.2K
C101 0.1
IC109 TC7SU04F
INVERTER
E118 10/16
E126 10/16
R196 1K
Q804 DTC124K
VOLTAGE CONTROL
R531 18K
C508 470P
BUS OUTPUT DATA CONTROL
R532 10K
Q501 2SC2412K
Q803 DTA124
R542 22K
SWITCHING REGULATOR CONTROL
REFERENCE VOLTAGE
TRIANGLE WAVE OSC.
ERROR AMP1
ERROR AMP2
S.C.P. COMP
PWM COMP 1
PWM COMP 2
LATCH
U.V.L.O
D.T.C. COMP
IC801 MB3775
C801 0.1
E802 10/16
C805 820P
R805 10K
C803 0.047
C802 0.047
R802 1K
R803 3.9K
C807 0.1
R804 33K
C806 0.1
R801 33K
E801 1000/16
Q511 2SD1664
LSI CONTROL (FOR-5V)
R561 10K
L801
C510 390P
Q802 2SB1261
R806 330-1/4
R809 330 1/4
R808 470 1/4
R807 470-1/4
Q801 2SB1261
SWITCHING
D802 FC805
L802 220μH
L803 220μH
R810 1.6K
R811 4.7K
E804 220/10
E803 220/10


IC109
IC504
IC503
IC801
IC505
Q509
Q510
Q512
Q503
Q501
Q804
Q502
Q513
Q803
Q505
Q506
Q507
Q508
Q504
Q511
Q802
Q801
Switch P. C. Board
CB505
S101 EJECT SWITCH
IC504 M62007FP
μ-COM SYSTEM RESET
RESET SIGNAL PRODUCE BLOCK
SQUEEZING SIGNAL PRODUCE BLOCK
Q505 DTA124
ACC DETECTOR
Q506 2SC2412K
V.STABILIZER
Q507 2SD1664
D803 DAP202K
D804 DAN202K
BA801
IC505 HD74HC00FP
BUS RESET /μ-COM WATCH DOG
RESET DRIVER
Q508 DTA124
Q504 DTC124K
D507 DAN202K
D506 DAN202K
D505 MA151WK
D503 DAN202K
ZD501 HZS5.6NB2
ZD502 RD6.2-MB2
Q509 DTC124K
Q512 DTA124
LSI CONTROL (FOR -5V)
Q513 DTC124K
LSI CONTROL (FOR +5V)
Q510 2SB1132
Q503 DTA144
Q502 DTC144K
D504 DAN202K
BUS INPUT DATA CONTROL
IC503 MC14538BFEL
ENABLE
OUTPUT LATCH
VREF1
VREF2
CONTROL
RESET LATCH
BUS RESET DETECTOR
WATCH DOG DETECTOR
D502 DAN202K
LSI CONTROL (FOR-5V)
Q511 2SD1664
CB103
GND
BATT
ACC
DATA
-5V
MUTE
A OUT
D OUT
BCK
CHCK
CKO
EMPH
DOUT SW
+5V
TO AUDIO P.C. BOARD (3/3)
BUS OUTPUT DATA CONTROL
Q501 2SC2412K
VOLTAGE CONTROL
Q804 DTC124K
Q803 DTA124
SWITCHING REGULATOR CONTROL
REFERENCE VOLTAGE
TRIANGLE WAVE OSC.
ERROR AMP1
ERROR AMP2
S.C.P. COMP
PWM COMP 1
PWM COMP 2
LATCH
U.V.L.O
D.T.C. COMP
IC801 MB3775
Q802 2SB1261
Q801 2SB1261
D802 FC805
L801
L802 220μH
L803 220μH
SWITCHING
IC109 TC7SU04F
INVERTER
(DATA GND)
(RESET)
(IGN SW)
(EJECT)
(+5V)
(MUTE)
(LSI CONT)
(BATT SW)
(W OUT)
(DATA)
(EMPH)
(-5V)

IC101

1	5.1V	17	PS	33	2V	49	2.1V	65	0V
2	5.1V	18	PS	34	2.1V	50	2.4V	66	0V
3	2.4V	19	PS	35	2.1V	51	2.3V	67	0V
4	1.7V	20	1.7V	36	2.1V	52	2.1V	68	0V
5	PS	21	5V	37	5.1V	53	2.5V	69	0V
6	2.4V	22	0V	38	2.1V	54	0V	70	2.6V
7	0.1V	23	0.1V	39	2.1V	55	2.5V	71	2.6V
8	PS	24	0V	40	2.4V	56	2.5V	72	2.5V
9	5.1V	25	5.1V	41	4.2V	57	2.5V	73	0V
10	2.4V	26	5.1V	42	5.1V	58	5.1V	74	5.1V
11	2.4V	27	5.1V	43	2.5V	59	5.1V	75	0V
12	5.1V	28	2.1V	44	2.5V	60	2V	76	5.1V
13	0V	29	2.1V	45	2.1V	61	2.1V	77	5.1V
14	PS	30	2.1V	46	2.1V	62	2.1V	78	0V
15	PS	31	0.3V	47	2.1V	63	2.3V	79	5.1V
16	PS	32	2.1V	48	2.1V	64	1.9V	80	2.2V

IC109

1	0V
2	2.5V
3	0V
4	2.6V
5	5.1V

IC501

1	0V	17	0V	33	0.1V	49	5V
2	0V	18	5V	34	0V	50	5V
3	0V	19	0V	35	0V	51	5V
4	0V	20	0V	36	5.1V	52	5V
5	0V	21	5V	37	PS	53	5V
6	5V	22	0V	38	5V	54	5V
7	5V	23	0V	39	PS	55	5V
8	2.7V	24	0V	40	PS	56	5V
9	2.6V	25	5.2V	41	0V	57	PS
10	5V	26	0V	42	0V	58	5V
11	5V	27	4.8V	43	5.1V	59	0V
12	PS	28	5V	44	0V	60	0V
13	0V	29	PS	45	PS	61	0V
14	0V	30	0V	46	PS	62	0V
15	0V	31	5V	47	PS	63	0V
16	0V	32	0.14V	48	PS	64	0V

IC504

1	5V
2	5V
3	5V
4	0V
5	0V
6	0V
7	0V
8	5V

IC502

1	5V	9	5V	17	5V
2	0V	10	5V	18	0V
3	0V	11	5V	19	0V
4	0V	12	0V	20	5V
5	0V	13	5V	21	5V
6	0V	14	5V	22	5V
7	0V	15	5V	23	0V
8	0V	16	5V	24	5V

IC503

1	0V	9	0V
2	5V	10	0V
3	5V	11	PS
4	0V	12	0V
5	5V	13	5V
6	5V	14	5V
7	5V	15	0V
8	0V	16	5V

IC505

1	0V	8	0V
2	0V	9	PS
3	5.2V	10	5.2V
4	5.2V	11	5.2V
5	0V	12	5V
6	5.2V	13	0V
7	0V	14	5.2V

IC801

1	5V	9	5V
2	0V	10	PS
3	0V	11	5V
4	0V	12	0V
5	0V	13	1.3V
6	0V	14	1.3V
7	PS	15	0V
8	0V	16	1.3V

	E	C	B
Q101	2.1V	2.1V	0V
Q114	0V	PS	PS
Q115	5.1V	0V	5.1V
Q116	2.1V	2.1V	4.9V
Q501	0V	PS	PS
Q502	0V	PS	PS
Q503	5.2V	PS	PS
Q504	0V	5V	0V
Q505	5.2V	5.1V	0V
Q506	0V	0V	0.6V
Q507	5.8V	13.1V	0V
Q508	5.2V	0V	5.2V
Q509	0V	0.1V	5V
Q510	5.2V	5.1V	4.4V
Q511	−5V	−4.9V	−4.3V
Q512	1.4V	−2.3V	0V
Q513	0V	0V	5V
Q801	13.7V	5.3V	13.3V
Q802	13.7V	0.1V	13.4V
Q803	13.6V	13.6V	0V
Q804	0V	0V	5V

(Measuring Conditions)

1.Power Supply Voltage :DC14V
2.Measuring Meter :Digital Multi Volt Meter
3.Measuring Point Reference :Between Ground
4.Measuring Conditions :Test Disc Play (A-BEX TCD-782
Track NO.2 1KHz)
Digital Output Switch (OFF)

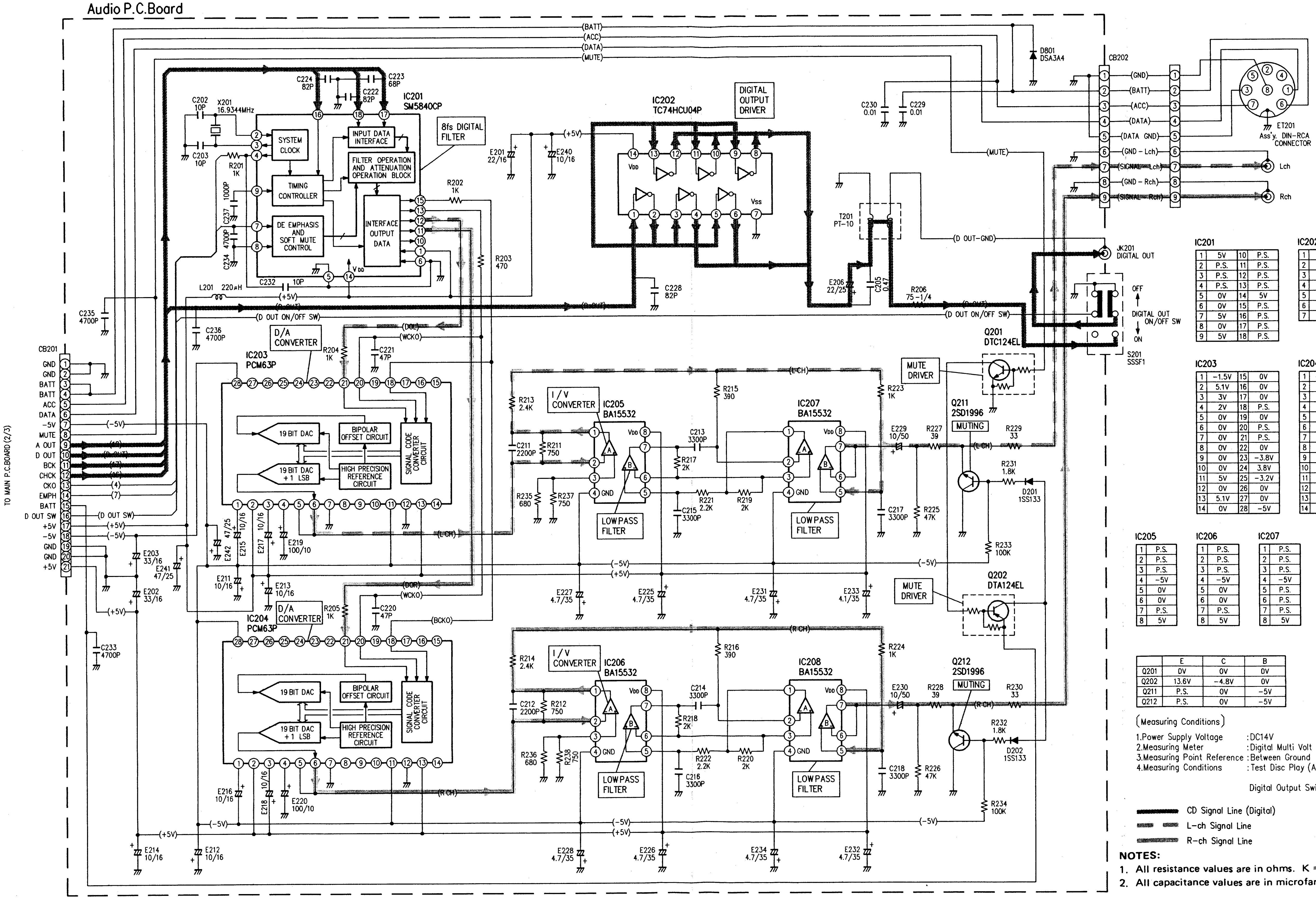
▨ CD Signal Line (Digital)
▬ Focus Servo Signal Line
▬ ▬ Tracking Servo Signal Line
▨ Spindle Servo Signal Line
▨ ▨ Sled Servo Signal Line

NOTES:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. P = $\frac{1}{1,000,000}$

Schematic Diagram (3/3)

IC	IC203 IC204	IC201	IC205 IC206	IC202	IC207 IC208		
Transistor(Q)						Q211 Q212	Q201 Q202


Audio P.C.Board
1
2
3
4
5
TO MAIN P.C.BOARD (2/3)
CB201
GND
GND
BATT
BATT
ACC
DATA
−5V
MUTE
A OUT
D OUT
BCK
CHCK
CKO
EMPH
BATT
D OUT SW
+5V
−5V
GND
GND
+5V
(BATT)
(ACC)
(DATA)
(MUTE)
(−5V)
(D OUT SW)
(+5V)
(−5V)
(+5V)
C235 4700P
C236 4700P
C233 4700P
C202 10P
X201 16.9344MHz
C203 10P
R201 1K
C224 82P
C222 82P
C223 68P
IC201 SM5840CP
SYSTEM CLOCK
TIMING CONTROLLER
DE EMPHASIS AND SOFT MUTE CONTROL
INPUT DATA INTERFACE
FILTER OPERATION AND ATTENUATION OPERATION BLOCK
INTERFACE OUTPUT DATA
8fs DIGITAL FILTER
VDD
C237 1000P
C234 4700P
C232 10P
L201 220μH
R202 1K
R203 470
E201 22/16
E240 10/16
(+5V)
(D OUT)
(D OUT ON/OFF SW)
(DOL)
(WCKO)
(DOR)
(BCKO)
D/A CONVERTER
R204 1K
R205 1K
C221 47P
C220 47P
IC203 PCM63P
IC204 PCM63P
19 BIT DAC
19 BIT DAC +1 LSB
BIPOLAR OFFSET CIRCUIT
HIGH PRECISION REFERENCE CIRCUIT
SIGNAL CODE CONVERTER CIRCUIT
E242 47/25
E215 10/16
E217 10/16
E219 100/10
E211 10/16
E213 10/16
E203 33/16
E241 47/25
E202 33/16
E216 10/16
E218 10/16
E220 100/10
E214 10/16
E212 10/16
(L CH)
(R CH)
IC202 TC74HCU04P
DIGITAL OUTPUT DRIVER
Vss
C228 82P
I/V CONVERTER
IC205 BA15532
IC206 BA15532
IC207 BA15532
IC208 BA15532
LOW PASS FILTER
GND
R213 2.4K
R214 2.4K
C211 2200P
C212 2200P
R211 750
R212 750
R235 680
R236 680
R237 750
R238 750
R215 390
R216 390
C213 3300P
C214 3300P
R217 2K
R218 2K
R221 2.2K
R222 2.2K
R219 2K
R220 2K
C215 3300P
C216 3300P
E227 4.7/35
E225 4.7/35
E231 4.7/35
E233 4.7/35
E228 4.7/35
E226 4.7/35
E234 4.7/35
E232 4.7/35
(−5V)
(+5V)
R223 1K
R224 1K
E229 10/50
E230 10/50
R227 39
R228 39
R229 33
R230 33
C217 3300P
C218 3300P
R225 47K
R226 47K
R231 1.8K
R232 1.8K
D201 1SS133
D202 1SS133
R233 100K
R234 100K
Q211 2SD1996
Q212 2SD1996
MUTING
MUTE DRIVER
Q201 DTC124EL
Q202 DTA124EL
C230 0.01
C229 0.01
T201 PT-10
E206 22/25
C205 0.47
R206 75−1/4
(D OUT-GND)
D801 DSA3A4
CB202
(GND)
(BATT)
(ACC)
(DATA)
(DATA GND)
(GND − Lch)
(SIGNAL − Lch)
(GND − Rch)
(SIGNAL − Rch)
ET201 Ass'y. DIN-RCA CONNECTOR
Lch
Rch
JK201 DIGITAL OUT
OFF
DIGITAL OUT ON/OFF SW
ON
S201 SSSF1
A
B
C
D
E
F
G
H

IC201

1	5V	10	P.S.
2	P.S.	11	P.S.
3	P.S.	12	P.S.
4	P.S.	13	P.S.
5	0V	14	5V
6	0V	15	P.S.
7	5V	16	P.S.
8	0V	17	P.S.
9	5V	18	P.S.

IC202

1	0V	8	0V
2	5.1V	9	5.1V
3	5.1V	10	0V
4	0V	11	5.1V
5	5.1V	12	0V
6	0V	13	5.1V
7	0V	14	5.1V

IC203

1	−1.5V	15	0V
2	5.1V	16	0V
3	3V	17	0V
4	2V	18	P.S.
5	0V	19	0V
6	0V	20	P.S.
7	0V	21	P.S.
8	0V	22	0V
9	0V	23	−3.8V
10	0V	24	3.8V
11	5V	25	−3.2V
12	0V	26	0V
13	5.1V	27	0V
14	0V	28	−5V

IC204

1	−1.5V	15	0V
2	5.1V	16	0V
3	3V	17	0V
4	2V	18	P.S.
5	0V	19	0V
6	0V	20	P.S.
7	0V	21	P.S.
8	0V	22	0V
9	0V	23	−3.8V
10	0V	24	3.8V
11	−5V	25	−3.2V
12	0V	26	0V
13	5.1V	27	0V
14	0V	28	−5V

IC205

1	P.S.
2	P.S.
3	P.S.
4	−5V
5	0V
6	0V
7	P.S.
8	5V

IC206

1	P.S.
2	P.S.
3	P.S.
4	−5V
5	0V
6	0V
7	P.S.
8	5V

IC207

1	P.S.
2	P.S.
3	P.S.
4	−5V
5	P.S.
6	P.S.
7	P.S.
8	5V

IC208

1	P.S.
2	P.S.
3	P.S.
4	−5V
5	P.S.
6	P.S.
7	P.S.
8	5V

	E	C	B
Q201	0V	0V	0V
Q202	13.6V	−4.8V	0V
Q211	P.S.	0V	−5V
Q212	P.S.	0V	−5V

(Measuring Conditions)

1.Power Supply Voltage :DC14V
2.Measuring Meter :Digital Multi Volt Meter
3.Measuring Point Reference :Between Ground
4.Measuring Conditions :Test Disc Play (A−BEX TCD−782
Track NO.2 1KHz)
Digital Output Switch (OFF)

▬ CD Signal Line (Digital)
▬ ▬ L−ch Signal Line
▬ R−ch Signal Line

NOTES:

1. **All resistance values are in ohms. K = 1,000**
2. **All capacitance values are in microfarads. $P = \frac{1}{1,000,000}$**

Electrical Parts List

Resistor : Carbon resistors under 1/4 watts are not mentioned in the parts list, please confirm them by schematic diagram.

Capacitor : μF = microfarads, pF = picofarads

Abbreviations

RES. = Resistor
C.F. = Carbon Film
M.F. = Metal Film
M.O. = Metal Oxide Film
M.P. = Metal Plate
TR. = Transistor
TRANS. = Transformer
CP. = Chip
CAP. = Capacitor
ELY. = Electrolytic
CER. = Ceramic
MYL. = Mylar
TAN. = Tantalum
POLY. = Polystyrol
PP. = Polypropylene
PLT. = Polyethylene
PF. = Polyester Film

Main P. C. Board

IC's

Symbol No.	Part No.	Description
IC101	51T25985W01	TC9236F
IC102	51T25984W01	TA8191F
IC103	51T15264W01	TCA0372M
IC104	51T15264W01	TCA0372M
IC109	51T35229W01	TC7SU04F
IC501	51T35253W01	35253W01
IC502	51T84723F02	LC3516AML
or	51T90640F01	CXK5816M
IC503	51T25370W01	MC14538BFEL
or	51T90267F02	μPD4538BG
IC504	51T35308W01	M62007FP
IC505	51T90277F10	HD74HC00FP
or	51T25904W03	MC74HC00AFL1
IC506	51T73285F01	BA10393F
IC701	51T15264W01	TCA0372M
IC702	51T15264W01	TCA0372M
IC801	51T35309W01	MB3775

Transistors

Symbol No.	Part No.	Description
Q101	48T62967F03	CP., DTC124K
Q102	48T63420F01	CP., 2SA1037K
Q103	48T80611F01	CP., 2SB1132
Q110	48T62967F02	CP., DTC114K
Q111	48T63417F01	CP., 2SC2412K
Q112	48T62967F09	CP., DTC114TK
Q113	48T62967F09	CP., DTC114TK
Q114	48T62967F03	CP., DTC124K
Q115	48T62966F03	CP., DTA124
Q116	48T62967F03	CP., DTC124K
Q501	48T63417F01	CP., 2SC2412K
Q502	48T62967F04	CP., DTC144K
Q503	48T62966F04	CP., DTA144
Q504	48T62967F03	CP., DTC124K
Q505	48T62966F03	CP., DTA124
Q506	48T63417F01	CP., 2SC2412K
Q507	48T80614F01	CP., 2SD1664
Q508	48T62966F03	CP., DTA124
Q509	48T62967F03	CP., DTC124K
Q510	48T80611F01	CP., 2SB1132
Q511	48T80614F01	CP., 2SD1664
Q512	48T62966F03	CP., DTA124
Q513	48T62967F03	CP., DTC124K
Q801	48T15511W02	CP., 2SB1261
Q802	48T15511W02	CP., 2SB1261
Q803	48T62966F03	CP., DTA124
Q804	48T62967F03	CP., DTC124K

Diodes

Symbol No.	Part No.	Description
D103	48T63463F01	CP., DAP202K
D104	48T94068F02	CP., DAP202U
D501	48T63462F01	CP., DAN202K
D502	48T63462F01	CP., DAN202K
D503	48T63462F01	CP., DAN202K
D504	48T63462F01	CP., DAN202K
D505	48T52446F01	CP., MA151WK
D506	48T63462F01	CP., DAN202K
D507	48T63462F01	CP., DAN202K
D802	48T35310W01	CP., FC805
D803	48T63463F01	CP., DAP202K
D804	48T63462F01	CP., DAN202K
ZD501	48T90517F27	Zener, HZS5.6NB2
ZD502	48T62934F25	Zener, CP. RD6.2MB2

Coils

Symbol No.	Part No.	Description
L801	25T52199F01	Choke
L802	24T16271W13	220μH
L803	24T16271W13	220μH

Thermistor / Crystal

Symbol No.	Part No.	Description
TH501	48T93439F06	Thermistor, 100K ohm
X501	91T15285W01	CER., Lock 4.19MHz

Symbol No.	Part No.	Description
Capacitors		
C101	08S65128F76	CP., 0.1μF
E101	23T25149W13	ELY., 100μF / 10V
E102	23T25149W09	ELY., 10μF / 16V
E103	23T25149W09	ELY., 10μF / 16V
E104	23T74437F32	TAN., 10μF / 16V
C105	08S65128F63	CP., 3300pF
E105	23T25149W07	ELY., 3.3μF / 50V
C106	08S65128F63	CP., 3300pF
C107	08S65128F35	CP., 100pF
E107	23T74437F32	TAN., 10μF / 16V
C108	08S65128F69	CP., 0.01μF
E108	23T25149W12	ELY., 47μF / 16V
C109	08S65128F69	CP., 0.01μF
E109	23T25149W12	ELY., 47μF / 16V
C110	08S65128F69	CP., 0.01μF
C111	08S65128F57	CP., 1000pF
C113	08T15399W01	CP., 0.022μF
C114	08S65128F64	CP., 3900pF
C115	08T15807W05	CP., 0.1μF
C116	08S65128F43	CP., 220pF
C117	08S65128F62	CP., 2700pF
E117	23T25149W04	ELY., 0.47μF / 50V
C118	08T15399W03	CP., 0.047μF
E118	23T74437F32	TAN., 10μF / 16V
C119	08S65128F29	CP., 56pF
E119	23T74437F32	TAN., 10μF / 16V
C120	08S65128F69	CP., 0.01μF
E120	23T25149W09	ELY., 10μF / 16V
C121	08S65128F13	CP., 12pF
E121	23T25149W09	ELY., 10μF / 16V
C122	08S53332F47	CP., 0.01μF
C123	08T15807W05	CP., 0.1μF
C124	08S65128F07	CP., 5pF
E125	23T74437F32	TAN., 10μF / 16V
C126	08T15807W05	CP., 0.1μF
E126	23T74437F32	TAN., 10μF / 16V
C127	08T15807W05	CP., 0.1μF
E127	23T25149W09	ELY., 10μF / 16V
E128	23T74437F32	TAN., 10μF / 16V
C129	08S65128F69	CP., 0.01μF
C130	08S65128F65	CP., 4700pF
C131	08T15399W03	CP., 0.047μF
C132	08T15399W03	CP., 0.047μF
C140	08S65128F65	CP., 4700pF
C141	08T15807W05	CP., 0.1μF
C142	08S65128F60	CP., 1800pF
C143	08S65128F69	CP., 0.01μF
E150	23T74437F32	TAN., 10μF / 16V
C190	08S65128F69	CP., 0.01μF
E502	23T25149W09	ELY., 10μF //16V

Symbol No.	Part No.	Description
C503	08T15807W05	CP., 0.1μF
E503	23T25149W09	ELY., 10μF / 16V
C504	08S53332F57	CP., 0.1μF
E504	23S61523F12	ELY., 10μF / 16V
C505	08T15807W01	CP., 0.047μF
C506	08T15807W01	CP., 0.047μF
E506	23T25149W15	ELY., 4.7μF / 35V
C507	08S65128F35	CP., 100pF
C508	08S65128F51	CP., 470pF
C509	08T15807W01	CP., 0.047μF
C510	08S65128F49	CP., 390pF
E510	23T25149W12	ELY., 47μF / 16V
E511	23T25149W09	ELY., 10μF / 16V
C520	08S65128F76	CP., 0.1μF
C521	08S65128F76	CP., 0.1μF
C522	08S65128F69	CP., 0.01μF
C523	08S65128F69	CP., 0.01μF
C524	08S65128F69	CP., 0.01μF
C703	08S65128F69	CP., 0.01μF
C704	08S65128F69	CP., 0.01μF
C801	08S53332F57	CP., 0.1μF
E801	23T25364W01	ELY., 1000μF / 16V
C802	08T15399W03	CP., 0.047μF
E802	23T74437F32	TAN., 10μF / 16V
C803	08T15399W03	CP., 0.047μF
E803	23T16086W01	ELY., 220μF / 10V
E804	23T16086W01	ELY., 220μF / 10V
C805	08S65128F56	CP., 820pF
E805	23T16086W02	ELY., 330μF / 6.3V
C806	08T15807W05	CP., 0.1μF
E806	23T16086W02	ELY., 330μF / 6.3V
C807	08S53332F57	CP., 0.1μF
E807	23T25149W09	ELY., 10μF / 16V
C808	08S65128F76	CP., 0.1μF
E808	23T16086W02	ELY., 330μF / 6.3V
E810	23T16086W02	ELY., 330μF / 6.3V
E811	23T16086W02	ELY., 330μF / 6.3V
Resistors (All resistors are chip 1/10W ± 5% unless otherwise noted.)		
R101	06S64995F73	6.8K ohm
R102	06S64996F18	470K ohm
R103	06S64995F39	270 ohm
R105	06S64995F89	33K ohm
R106	06S64995F85	22K ohm
R107	06S64996F10	220K ohm
R108	06S64996F02	100K ohm
R109	06S64995F83	18K ohm
R110	06S64995F57	1.5K ohm
R111	06S64995F83	18K ohm

Symbol No.	Part No.	Description
R112	06S64995F91	39K ohm
R113	06S64995F53	1K ohm
R114	06S64996F10	220K ohm
R115	06S64995F77	10K ohm
R116	06S64995F93	47K ohm
R117	06S64996F30	2.2M ohm
R118	06S64995F89	33K ohm
R119	06S64995F95	56K ohm
R120	06S64995F77	10K ohm
R121	06S64995F87	27K ohm
R122	06S64995F63	2.7K ohm
R123	06S64996F12	270K ohm
R124	06S64995F83	18K ohm
R125	06S64996F02	100K ohm
R126	06S64995F77	10K ohm
R127	06S64996F04	120K ohm
R128	06S64996F02	100K ohm
R129	06S64995F81	15K ohm
R130	06S64995F85	22K ohm
R131	06S64995F77	10K ohm
R132	06S64995F77	10K ohm
R133	06S64995F77	10K ohm
R134	06S64996F20	560K ohm
R135	06S64996F06	150K ohm
R136	06S64995F61	2.2K ohm
R137	06S64995F77	10K ohm
R138	06S64995F69	4.7K ohm
R139	06S64995F69	4.7K ohm
R140	06S64995F69	4.7K ohm
R141	06T70072F05	10 ohm 1/4W
R144	06S64995F53	1K ohm
R145	06S64995F47	560 ohm
R146	06S64995F81	15K ohm
R147	06S64995F97	68K ohm
R148	06S64995F85	22K ohm
R149	06S64995F77	10K ohm
R150	06S64995F77	10K ohm
R151	06S64995F85	22K ohm
R152	06S64995F85	22K ohm
R153	06S64995F77	10K ohm
R154	06S64995F77	10K ohm
R155	06S64995F85	22K ohm
R156	06S64995F85	22K ohm
R157	06S64995F77	10K ohm
R158	06S64995F77	10K ohm
R159	06S64995F85	22K ohm
R160	06S64995F85	22K ohm
R161	06S64995F77	10K ohm
R162	06S64995F77	10K ohm
R163	06S64995F85	22K ohm
R166	06T70072F05	10 ohm 1/4W
R167	06S64996F04	120K ohm

Symbol No.	Part No.	Description
R168	06T70072F05	10 ohm 1/4W
R179	06S64995F43	390 ohm
R180	06S64995F77	10K ohm
R181	06S64996F02	100K ohm
R183	06S64996F10	220K ohm
R185	06S64995F83	18K ohm
R186	06S64995F53	1K ohm
R187	06S64995F53	1K ohm
R188	06S64995F65	3.3K ohm
R189	06S64996F18	470K ohm
R190	06S64995F93	47K ohm
R191	06S64995F85	22K ohm
R192	06S64995F77	10K ohm
R194	06S64995F53	1K ohm
R195	06S64995F53	1K ohm
R196	06S64995F53	1K ohm
R197	06S64995F45	470 ohm
R198	06S64996F14	330K ohm
R501	06S64995F83	18K ohm
R502	06S64995F53	1K ohm
R503	06S64996F02	100K ohm
R504	06S64995F89	33K ohm
R505	06S64996F10	220K ohm
R506	06S64995F35	180 ohm
R507	06S64995F93	47K ohm
R508	06S64995F93	47K ohm
R509	06S64995F89	33K ohm
R510	06S64995F45	470 ohm
R511	06S64995F89	33K ohm
R512	06S64995F93	47K ohm
R513	06S64995F55	1.2K ohm
R514	06S64996F26	1M ohm
R515	06S64996F02	100K ohm
R516	06S64996F02	100K ohm
R517	06S64996F10	220K ohm
R518	06S64996F02	100K ohm
R519	06S64995F93	47K ohm
R520	06S64995F93	47K ohm
R521	06S64995F93	47K ohm
R522	06S64995F93	47K ohm
R523	06S64995F93	47K ohm
R524	06S64995F93	47K ohm
R525	06S64995F93	47K ohm
R526	06S64995F93	47K ohm
R527	06S64996F22	680K ohm
R528	06S64996F26	1M ohm
R529	06S64996F18	470K ohm
R530	06S64995F77	10K ohm
R531	06S64995F83	18K ohm
R532	06S64995F77	10K ohm
R533	06S64995F85	22K ohm
R535	06S64995F77	10K ohm

Symbol No.	Part No.	Description
R536	06S64995F93	47K ohm
R537	06T70072F65	3.3K ohm 1/4W
R538	06S64995F53	1K ohm
R539	06S64996F18	470K ohm
R540	06S64995F53	1K ohm
R541	06S64995F93	47K ohm
R542	06S64995F85	22K ohm
R543	06S64995F93	47K ohm
R550	06S64995F69	4.7K ohm
R551	06S64995F93	47K ohm
R560	06S64995F89	33K ohm
R561	06S64995F77	10K ohm
R562	06T70072F53	1K ohm 1/4W
R563	06S64995F59	1.8K ohm
R570	06T70072F45	470 ohm 1/4W
R571	06S64995F77	10K ohm
R572	06T70072F37	220 ohm 1/4W
R580	06S64995F77	10K ohm
R581	06S64995F77	10K ohm
R582	06S64995F61	2.2K ohm
R583	06S64995F63	2.7K ohm
R584	06S64995F63	2.7K ohm
R590	06T70072F90	1 ohm 1/4W
R591	06T70072F90	1 ohm 1/4W
R701	06S64995F75	8.2K ohm
R702	06S64995F77	10K ohm
R703	06S64995F77	10K ohm
R704	06S64995F75	8.2K ohm
R705	06S64995F77	10K ohm
R706	06S64995F77	10K ohm
R707	06S64995F75	8.2K ohm
R709	06S64995F77	10K ohm
R710	06S64995F77	10K ohm
R711	06S64995F75	8.2K ohm
R713	06S64995F77	10K ohm
R714	06S64995F77	10K ohm
R801	06S64995F89	33K ohm
R802	06S64995F53	1K ohm
R803	06S64995F67	3.9K ohm
R804	06S64995F89	33K ohm
R805	06S64995F77	10K ohm
R806	06T70072F41	330 ohm 1/4W
R807	06T70072F45	470 ohm 1/4W
R808	06T70072F45	470 ohm 1/4W
R809	06T70072F41	330 ohm 1/4W
R810	06S64995F58	1.6K ohm
R811	06S64995F69	4.7K ohm
R812	06S64995F01	4.7 ohm
R815	06S64995F77	10K ohm
R820	06T70072F90	1 ohm 1/4W
R821	06T70072F90	1 ohm 1/4W
VR101	18T91059F19	Variable, 100K ohm
VR102	18T91059F09	Variable, 2.2K ohm
VR103	18T91059F09	Variable, 2.2K ohm

Audio P. C. Board

IC's

Symbol No.	Part No.	Description
IC201	51T35105W01	SM5840CP
IC202	51T80475F01	TC74HCU04P
IC203	51T35201W01	PCM63P
IC204	51T35201W01	PCM63P
IC205	51T25154W02	BA15532
IC206	51T25154W02	BA15532
IC207	51T25154W02	BA15532
IC208	51T25154W02	BA15532

Transistors

Symbol No.	Part No.	Description
Q201	48T82763F03	DTC124EL
Q202	48T82762F03	DTA124EL
Q211	48T90183F03	2SD1996
Q212	48T90183F03	2SD1996

Diodes

Symbol No.	Part No.	Description
D201	48T68828F01	1SS133
D202	48T68828F01	1SS133
D801	48T68580F02	DSA3A4

Switch

Symbol No.	Part No.	Description
S201	40T25473W02	Slide, SSSF1 (DIGITAL OUT ON/OFF)

Coils / Crystal

Symbol No.	Part No.	Description
T201	25T92419F01	TRANS., PT-10
L201	24T50508F38	Inductor, 220μH
X201	91T25773W92	Crystal, 16.9344MHz

Capacitors

Symbol No.	Part No.	Description
E201	23T74437F34	TAN., 22μF / 16V
C202	21C45322G10	CER., 10pF
E202	23T00181L17	ELY., 33μF / 16V
C203	21S40655F11	CER., 10pF

Symbol No.	Part No.	Description	
E203	23T00181L17	ELY.,	33µF / 16V
C205	08T25620W01	CER.,	0.47µF
E206	23T00181L25	ELY.,	22µF / 25V
C211	08T35388W09	TF,	2200pF
E211	23T25149W09	ELY.,	10µF / 16V
C212	08T35388W09	TF,	2200pF
E212	23T25149W09	ELY.,	10µF / 16V
C213	08T00152L15	PP.,	3300pF
E213	23T25149W09	ELY.,	10µF / 16V
C214	08T00152L15	PP.,	3300pF
E214	23T25149W09	ELY.,	10µF / 16V
C215	08T00152L15	PP.,	3300pF
E215	23T25149W09	ELY.,	10µF / 16V
C216	08T00152L15	PP.,	3300pF
E216	23T25149W09	ELY.,	10µF / 16V
C217	08T00152L15	PP.,	3300pF
E217	23T25149W09	ELY.,	10µF / 16V
C218	08T00152L15	PP.,	3300pF
E218	23T25149W09	ELY.,	10µF / 16V
E219	23T00181L09	ELY.,	100µF / 10V
C220	21S40655F19	CER.,	47pF
E220	23T00181L09	ELY.,	100µF / 10V
C221	21S40655F19	CER.,	47pF
C222	21S40655F22	CER.,	82pF
C223	21C45322G20	CER.,	68pF
C224	21S40655F22	CER.,	82pF
E225	23T25149W15	ELY.,	4.7µF / 35V
E226	23T25149W15	ELY.,	4.7µF / 35V
E227	23T25149W15	ELY.,	4.7µF / 35V
C228	21S40655F22	CER.,	82pF
E228	23T25149W15	ELY.,	4.7µF / 35V
C229	08S40805F19	CER.,	0.01µF
E229	23T00181L44	ELY.,	10µF / 50V
C230	08S40805F19	CER.,	0.01µF
E230	23T00181L44	ELY.,	10µF / 50V
E231	23T25149W15	ELY.,	4.7µF / 35V
C232	21C45322G10	CER.,	10pF
E232	23T25149W15	ELY.,	4.7µF / 35V
C233	21C45322G30	CER.,	4700pF
E233	23T25149W15	ELY.,	4.7µF / 35V
C234	21C45322G30	CER.,	4700pF
E234	23T25149W15	ELY.,	4.7µF / 35V
C235	21C45322G30	CER.,	4700pF
C236	21C45322G30	CER.,	4700pF
C237	08T52714F01	CER.,	1000pF
E240	23S65123F12	ELY.,	10µF / 16V
E241	23T00181L26	ELY.,	47µF / 25V
E242	23T00181L26	ELY.,	47µF / 25V

Symbol No.	Part No.	Description
Miscellaneous		
BA801	60T91060F01	Battery, LIT. CR2032-HE2
ET201	01T35186W01	Assy., DIN-RCA Connector
JK201	09T84775F01	Plate, PH (Digital Output)
HD101	88T15309W01	Pick-Up Unit SF-87.5
LD101	48T16057W01	LED, AN501 (RED)
LD102	48T16057W02	LED, AN501-B1 (RED)
LD103	48T16057W02	LED, AN501-B1 (RED)
M101	59T90879F01	Motor, Load 6V-260mA (LOADING)
M102	59T15716W01	Motor, Load 8V-85mA (ELEVATOR)
M103	59T52973F03	Motor, Servo 6V-210mA (SLED)
PI101	48T15722W01	Interrupter, Photo GP1S51
PT101	48T15938W01	TR., Photo PS502
PT102	48T15938W01	TR., Photo PS502
PT103	48T15938W01	TR., Photo PS502
S101	40T70366F01	Switch, Tact KHL10906 (EJECT)
S102	40T71025F01	Switch, Detector (LOADING)
S103	40T71025F01	Switch, Detector (HOME)
S104	40T71025F01	Switch, Detector (MAGAZINE)
S105	40T71025F01	Switch, Detector (LIMIT)

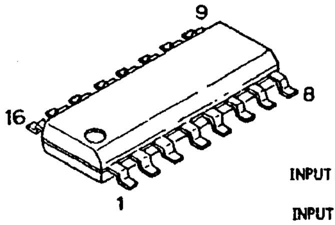
Cabinet Assembly Parts List

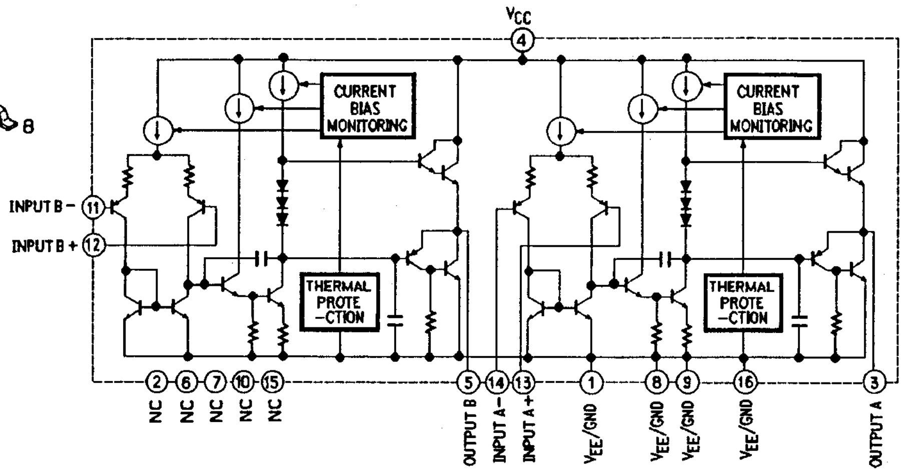
NOTE : The parts without parts list are not supplied.

Symbol No.	Index	Part No.	Description
1	3-A	13T35250W01	Assy., Front Escutcheon
3	1-A	15D22218W04	Cover, Top
4	1-A	15B22213W04	Cover, Plate (L)
5	3-B	15B22214W04	Cover, Plate (R)
6		15B22423W01	Holder, Damper (B)
7	3-F	04A11427W01	Washer, Damper
8		04A28003W01	Spacer, Damper
9	3-C	64B12370W01	Assy., Plate Inner
13	3-F	84T35118W01	Flexible P.C.Board
15	4-E	05B41635J04	Rivet Push
16	2-C	41B11514W01	Spring, Extension
17	4-F	03S94385F17	Screw, Pan (M2.6×6)
18		03S94385F15	Screw, Pan (M2.6×4)
19		03S44205G34	Screw, Pan (M2.6×5)
20		03D40121T41	Screw, W/Double Washer (M3×6)
21		03A13419W04	Screw, Transport (M4×21.5)
22	4-E	03A38056W01	Screw, Special (M2.6×6)
23	4-C	03S44205G98	Screw, Pan (M2.6×5)
24		03S40036U11	Screw, Pan (M3×8)
25	2-B	03S44205G05	Screw, Pan (M3×5)
27		75A28002W01	Damper, DR (B)
32		03S68555F04	Screw, Pan (M2.6×6)
33	2-H	03S70494F10	Screw, Pan (M2.6×10)
38	3-F	14S32186W06	Insulator, Cover
39	1-E	01T45064W01	Assy., Shield Wire

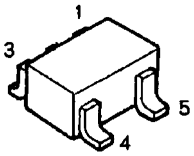
Symbol No.	Index	Part No.	Description

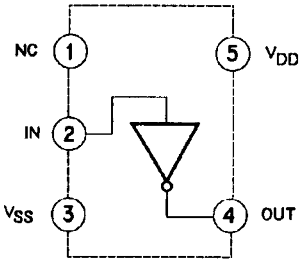
TCA0372M : IC103, 104, 701, 702



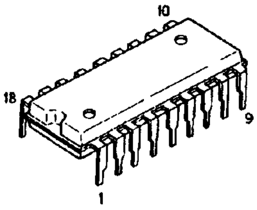

VCC
④
CURRENT
BIAS
MONITORING
CURRENT
BIAS
MONITORING
INPUT B − ⑪
INPUT B + ⑫
THERMAL
PROTE
−CTION
THERMAL
PROTE
−CTION
②
⑥
⑦
⑩
⑮
NC
NC
NC
NC
NC
⑤
OUTPUT B
⑭
INPUT A −
⑬
INPUT A +
①
VEE/GND
⑧
VEE/GND
⑨
VEE/GND
⑯
VEE/GND
③
OUTPUT A

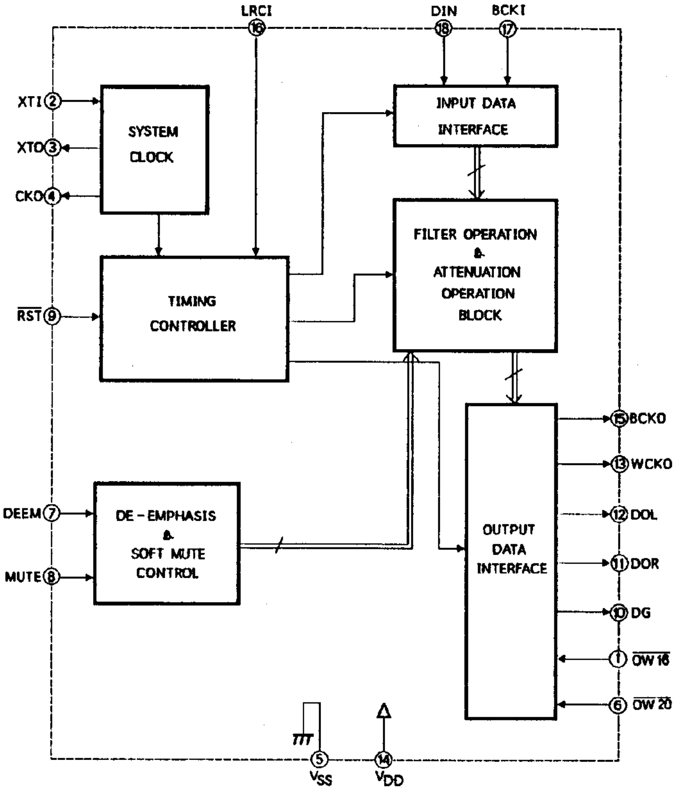
TC7SU04F : IC109



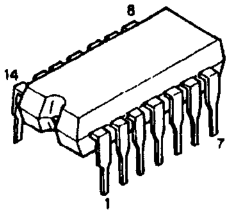

NC ①
⑤ VDD
IN ②
VSS ③
④ OUT

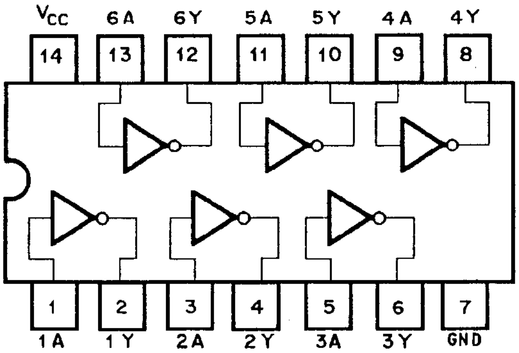
SM5840CP : IC201



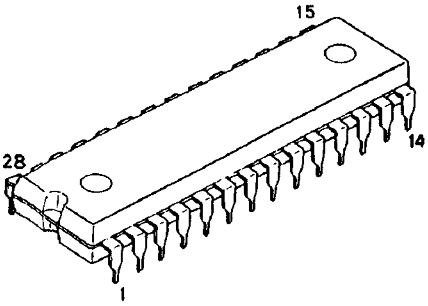

LRCI ⑯
DIN ⑱
BCKI ⑰
XTI ②
XTO ③
CKO ④
SYSTEM CLOCK
INPUT DATA INTERFACE
TIMING CONTROLLER
FILTER OPERATION & ATTENUATION OPERATION BLOCK
RST ⑨
DEEM ⑦
MUTE ⑧
DE-EMPHASIS & SOFT MUTE CONTROL
OUTPUT DATA INTERFACE
⑮ BCKO
⑬ WCKO
⑫ DOL
⑪ DOR
⑩ DG
① OW16
⑥ OW20
⑤ VSS
⑭ VDD

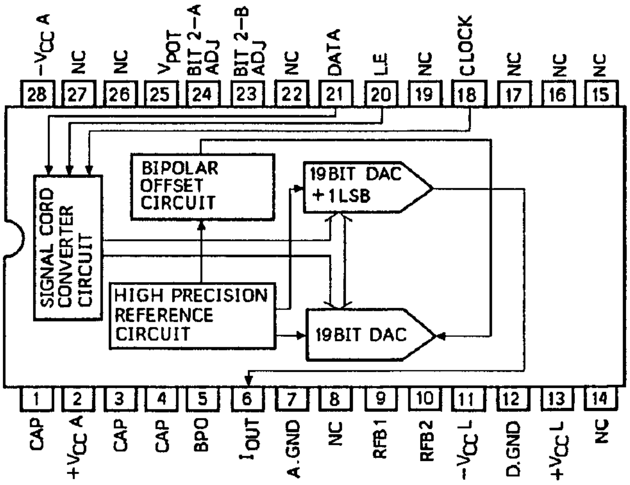
TC74HCU04P : IC202



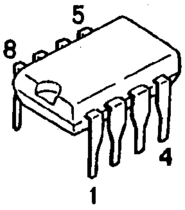

V_{CC}
6A
6Y
5A
5Y
4A
4Y
14
13
12
11
10
9
8
1
2
3
4
5
6
7
1A
1Y
2A
2Y
3A
3Y
GND

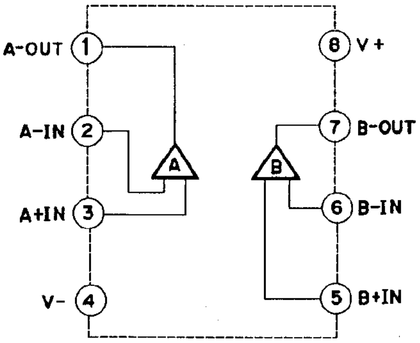
PCM63P : IC203, 204



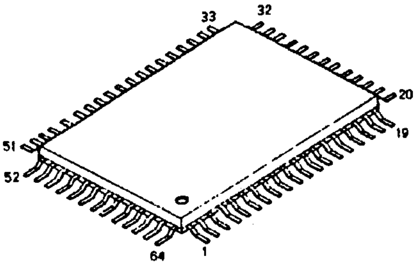

$-V_{CC}$ A
NC
NC
V_{POT}
BIT 2-A ADJ
BIT 2-B ADJ
NC
DATA
LE
NC
CLOCK
NC
NC
NC
28
27
26
25
24
23
22
21
20
19
18
17
16
15
SIGNAL CORD CONVERTER CIRCUIT
BIPOLAR OFFSET CIRCUIT
19BIT DAC +1LSB
HIGH PRECISION REFERENCE CIRCUIT
19BIT DAC
1
2
3
4
5
6
7
8
9
10
11
12
13
14
CAP
$+V_{CC}$ A
CAP
CAP
BPO
I_{OUT}
A.GND
NC
RFB1
RFB2
$-V_{CC}$ L
D.GND
$+V_{CC}$ L
NC

BA15532 : IC205~208



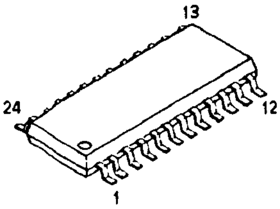

A-OUT
1
A-IN
2
A+IN
3
V-
4
A
B
8
V+
7
B-OUT
6
B-IN
5
B+IN

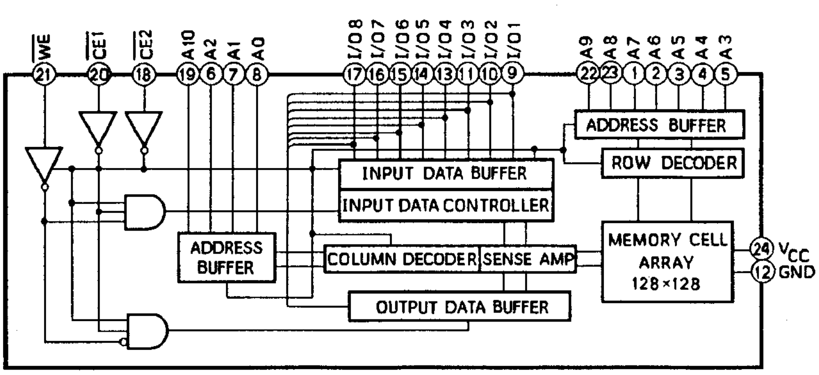
35253W01 : IC501


33
32
20
19
51
52
64
1

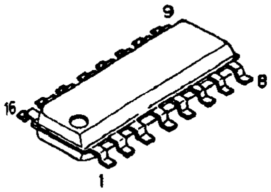
PIN NO.	CORD ADDRESS	I/O	PIN NO.	CORD ADDRESS	I/O	PIN NO.	CORD ADDRESS	I/O
1	A5	O	23	HI TEMP	I	45	BUS 3	I/O
2	A4	O	24	EJE KEY	I	46	BUS 2	I/O
3	A3	O	25	IGN SW	I	47	BUS 1	I/O
4	A2	O	26	V_{SS}	—	48	BUS 0	I/O
5	A1	O	27	STB RELE	I	49	D8	I/O
6	A0	O	28	BATT SW	I	50	D7	I/O
7	$\overline{\text{RESET}}$	—	29	BUS IN	I	51	D6	I/O
8	X2	—	30	DISCP	I	52	D5	I/O
9	X1	—	31	DISCIN	I	53	D4	I/O
10	$\overline{\text{WE}}$	O	32	LOD SW	I	54	D3	I/O
11	$\overline{\text{OE}}$	O	33	DISC OK	I	55	D2	I/O
12	W OUT	I	34	$\overline{\text{HMP SW}}$	I	56	D1	I/O
13	F CONT	O	35	$\overline{\text{MAG SW}}$	I	57	V_{PP}	—
14	ELV M (+)	O	36	$\overline{\text{LIM SW}}$	I	58	V_{DD}	—
15	ELV M (−)	O	37	BUS OUT	O	59	$\overline{\text{CE}}$	O
16	LOD M (+)	O	38	$\overline{\text{LSI RST}}$	O	60	A10	O
17	LOD M (−)	O	39	BUCK	O	61	A9	O
18	LSI CONT	O	40	CCE	O	62	A8	O
19	MUTE	O	41	LO TEMP	I	63	A7	O
20	NC	—	42	DOUT SW	I	64	A6	O
21	VCONT	O	43	LOCK	—			
22	$\overline{\text{LARM SW}}$	I	44	GND	—			

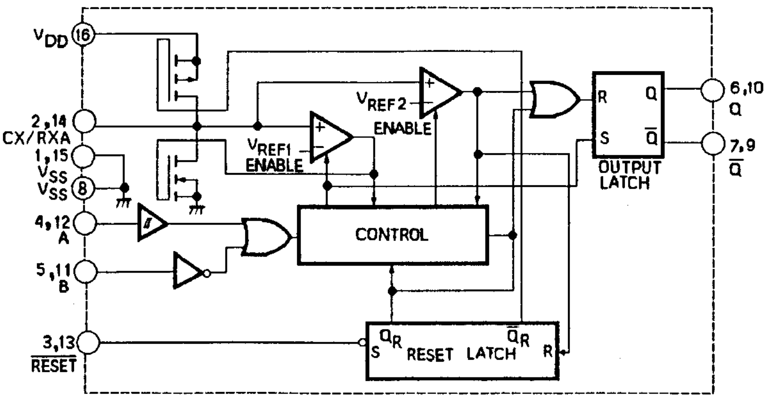
LC3516AML
CXK5816M : IC502



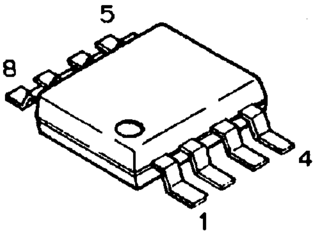

WE
CE1
CE2
A10
A2
A1
A0
I/O8
I/O7
I/O6
I/O5
I/O4
I/O3
I/O2
I/O1
A9
A8
A7
A6
A5
A4
A3
21
20
18
19
6
7
8
17
16
15
14
13
11
10
9
22
23
1
2
3
4
5
ADDRESS BUFFER
ROW DECODER
INPUT DATA BUFFER
INPUT DATA CONTROLLER
ADDRESS BUFFER
COLUMN DECODER
SENSE AMP
MEMORY CELL ARRAY 128×128
24 VCC
12 GND
OUTPUT DATA BUFFER

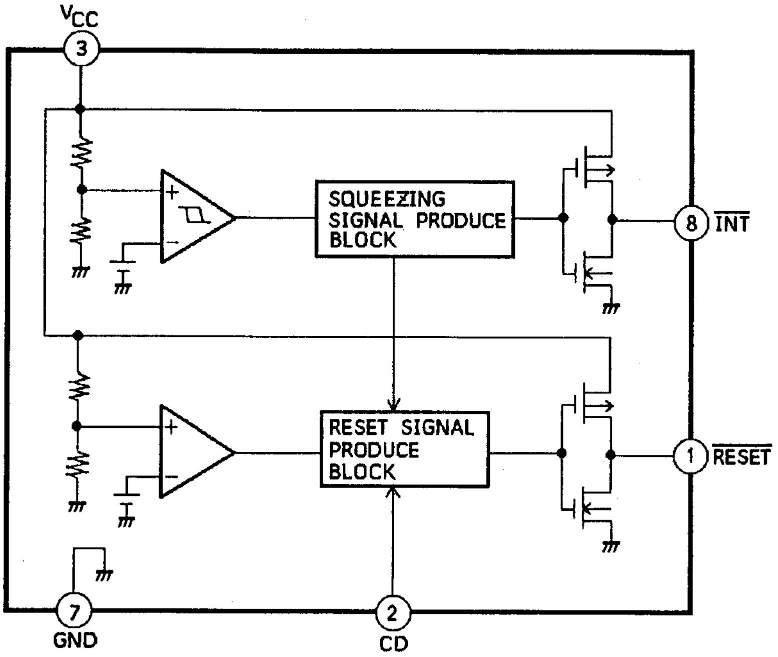
MC14538BFEL
µPD4538BG : IC503



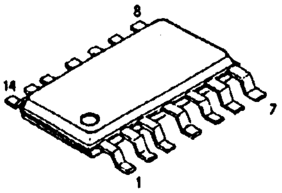

VDD 16
2,14 CX/RXA
1,15 VSS
VSS 8
4,12 A
5,11 B
3,13 RESET
VREF2 ENABLE
VREF1 ENABLE
CONTROL
R Q
S Q
OUTPUT LATCH
6,10 Q
7,9 Q
S QR RESET LATCH QR R

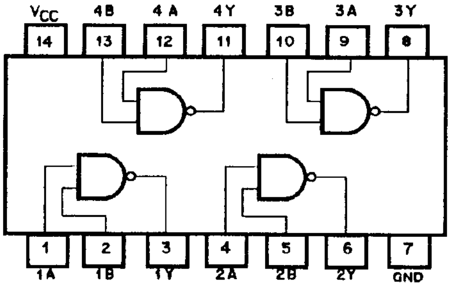
M62007FP : IC504



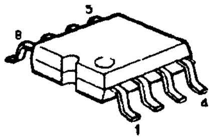

VCC
3
SQUEEZING SIGNAL PRODUCE BLOCK
8
INT
RESET SIGNAL PRODUCE BLOCK
1
RESET
7
GND
2
CD

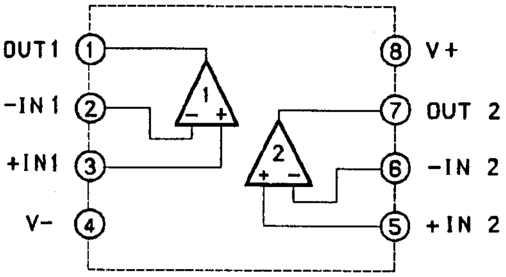
MC74HC00AFL1 : IC505



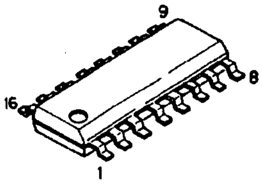

VCC
4B
4A
4Y
3B
3A
3Y
14
13
12
11
10
9
8
1
2
3
4
5
6
7
1A
1B
1Y
2A
2B
2Y
GND

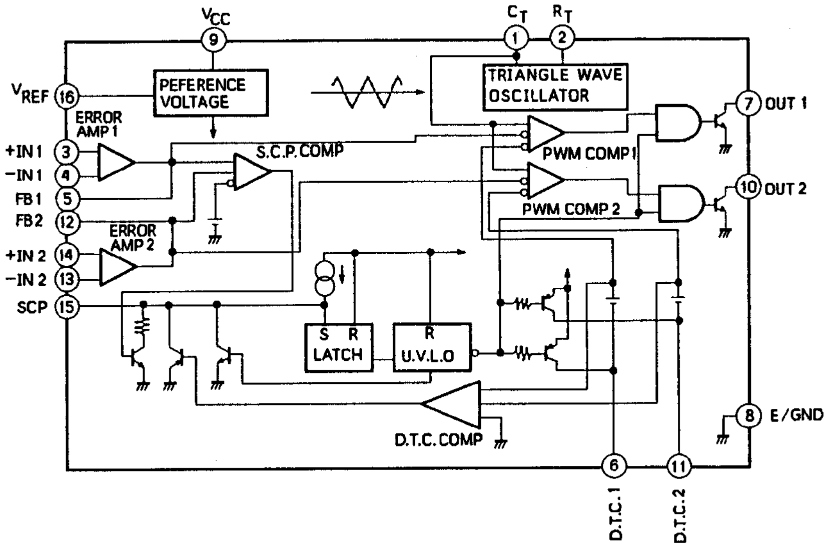
BA10393F : IC506




OUT1
1
-IN1
2
+IN1
3
V-
4
8
V+
7
OUT 2
6
-IN 2
5
+IN 2
1
2

MB3775 : IC801




VCC
9
CT
RT
1
2
VREF 16
PEFERENCE VOLTAGE
TRIANGLE WAVE OSCILLATOR
ERROR AMP 1
+IN1 3
−IN1 4
FB1 5
FB2 12
ERROR AMP 2
+IN 2 14
−IN 2 13
SCP 15
S.C.P. COMP
PWM COMP 1
PWM COMP 2
7 OUT 1
10 OUT 2
S R LATCH
R U.V.L.O
D.T.C. COMP
8 E/GND
6
11
D.T.C.1
D.T.C.2

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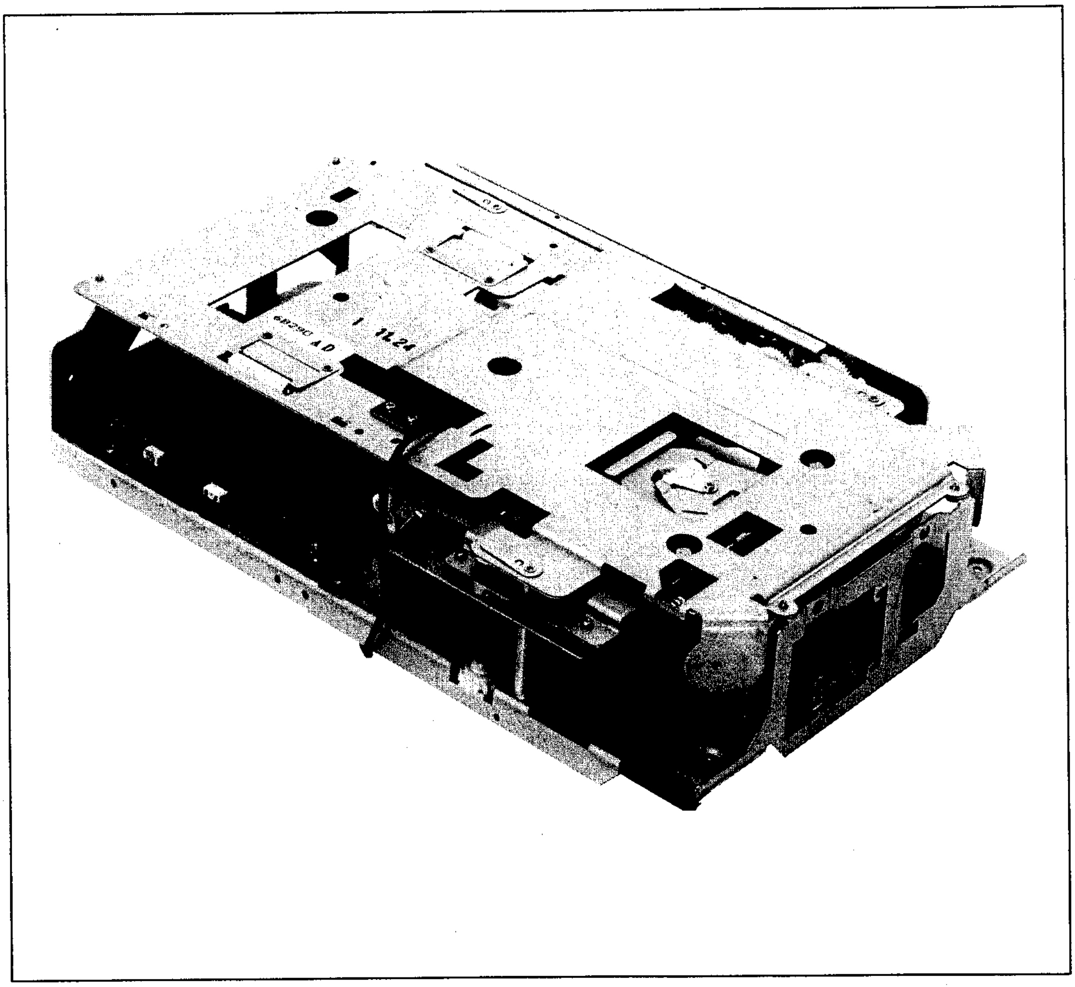
SERVICE MANUAL

CD Remote Changer Mechanism
CD Shuttle

ADDENDUM & REVISED (II)



DR SERIES

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Disassembly Instructions

<DR24A010 Model Only>

1. **Removal of Pick-up Unit**
   (1)Remove three screws marked "O" as shown in Figure 1.
2. **Removal of Sled Motor**
   (1) After removal of the pick-up unit, remove the motor bracket with sled motor by removing the solder (A) and two screws marked "X" as shown in Figure 1.
   (2) Remove the solder (B) and a screw marked "□" as shown in Figure 1.
3. **Removal of Head Unit**
   (1) After removal of the motor bracket, remove the shaft bracket and the screw bracket by removing two screws marked "△" as shown in Figure 1.

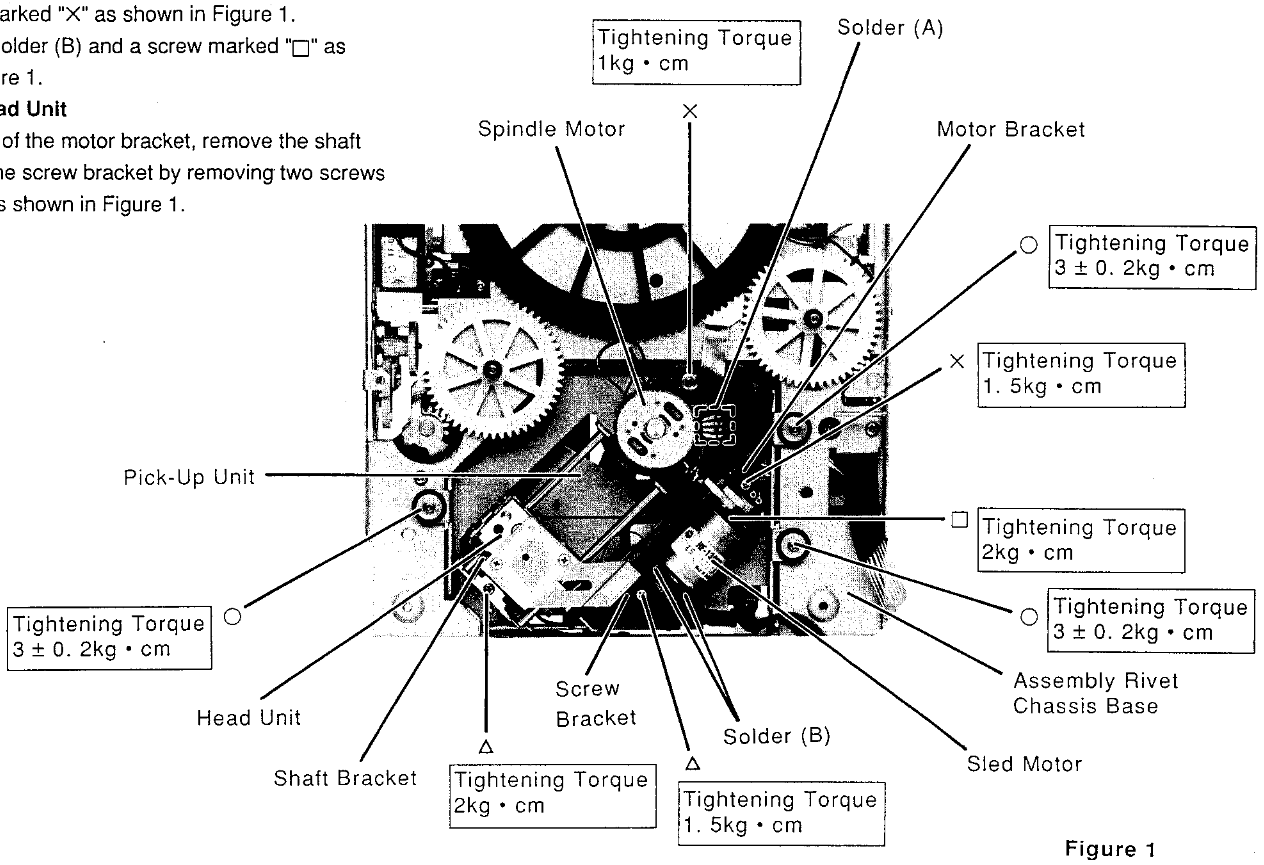

Tightening Torque
1kg • cm
Solder (A)
×
Spindle Motor
Motor Bracket
○ Tightening Torque
3 ± 0. 2kg • cm
× Tightening Torque
1. 5kg • cm
Pick-Up Unit
□ Tightening Torque
2kg • cm
Tightening Torque
3 ± 0. 2kg • cm ○
○ Tightening Torque
3 ± 0. 2kg • cm
Assembly Rivet
Chassis Base
Screw
Bracket
Head Unit
Solder (B)
Sled Motor
Shaft Bracket
△
Tightening Torque
2kg • cm
△
Tightening Torque
1. 5kg • cm

Figure 1

4. **Removal of LED P. C. Board**
   (1) Remove two screws marked "●" as shown in Figure 2.
5. **Removal of Switch P.C. Board**
   (1) Remove a screw marked "▲" as shown in Figure 2.
   (2) Remove the hook (A) as shown in Figure 2.

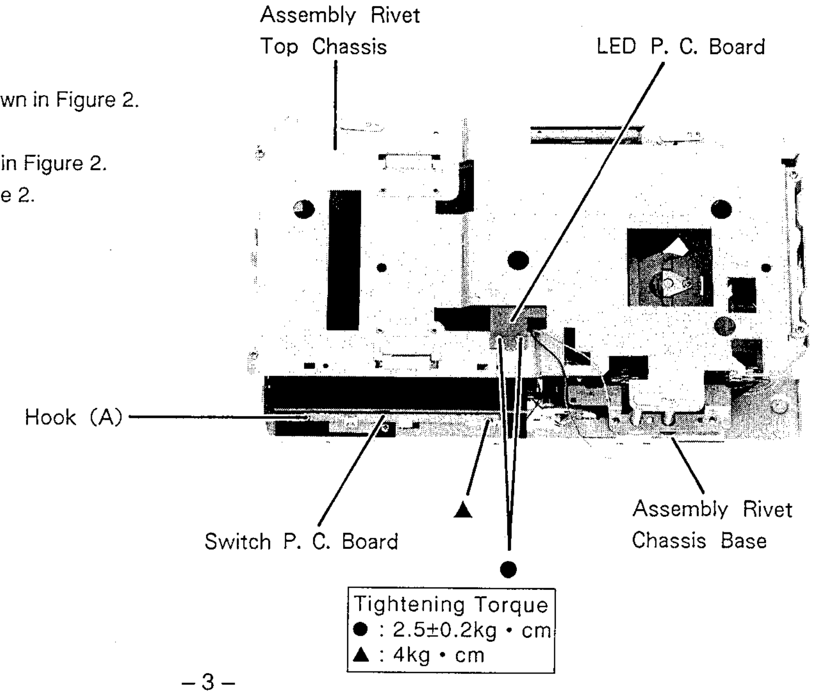

Assembly Rivet
Top Chassis
LED P. C. Board
Hook (A)
▲
Switch P. C. Board
Assembly Rivet
Chassis Base
●
Tightening Torque
● : 2.5±0.2kg • cm
▲ : 4kg • cm

Figure 2

6. **Removal of Assembly Rivet Chassis CR**
   (1) After Remove seven screws marked "∞", remove the Assembly Rivet Top Chassis and the Assembly Rivet Chassis Base as shown in Figure 3.
7. **Removal of Photo P. C. Board**
   (1) After picking up the Assembly Rivet Chassis CR, remove the solder (C) as shown in Figure 4.
   (2) Remove a screw marked "■" as shown in Figure 4.

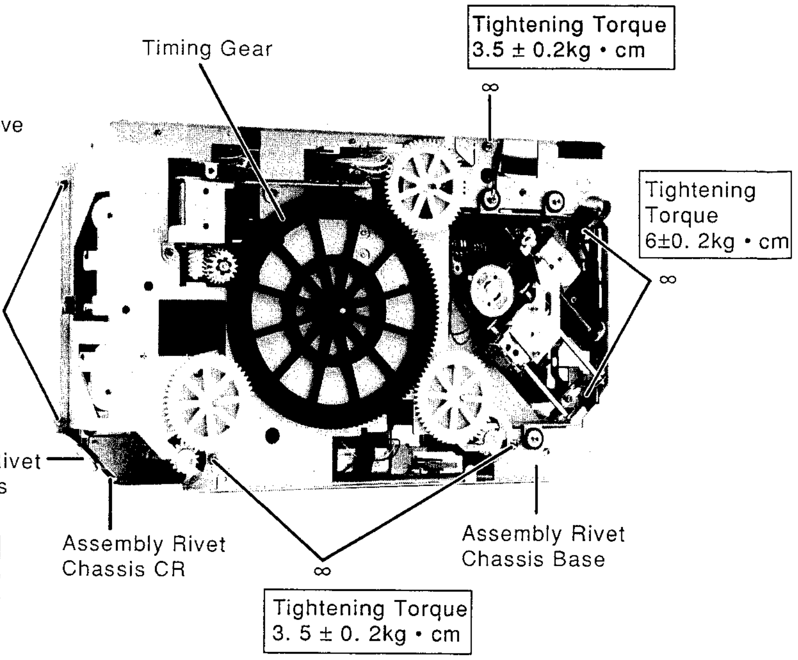

Timing Gear
Tightening Torque
3.5 ± 0.2kg • cm
∞
Tightening
Torque
6±0. 2kg • cm
∞
Tightening Torque
6 ± 0. 2kg • cm ∞
Assembly Rivet
Top Chassis
Assembly Rivet
Chassis CR
Assembly Rivet
Chassis Base
∞
Tightening Torque
3. 5 ± 0. 2kg • cm

Figure 3

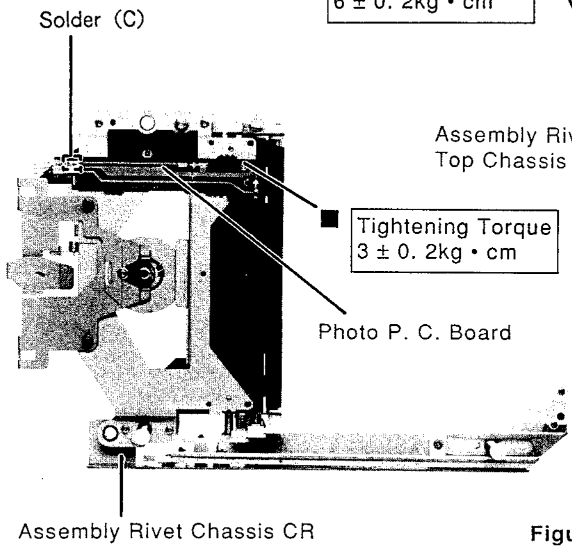

Solder (C)
■
Tightening Torque
3 ± 0. 2kg • cm
Photo P. C. Board
Assembly Rivet Chassis CR

Figure 4

8. **Removal of Sensor P. C. Board**
   (1) After removal of the Assembly Rivet Chassis CR, remove the solder (D) and (E) as shown in Figure 5.
   (2) Remove two screws marked "☆" as shown in Figure 5.
9. **Removal of Loading Motor**
   (1) After removal of the Assembly Rivet Chassis CR, remove the solder (E) as shown in Figure 5.
   (2) Remove two screws marked "★" as shown in Figure 5.

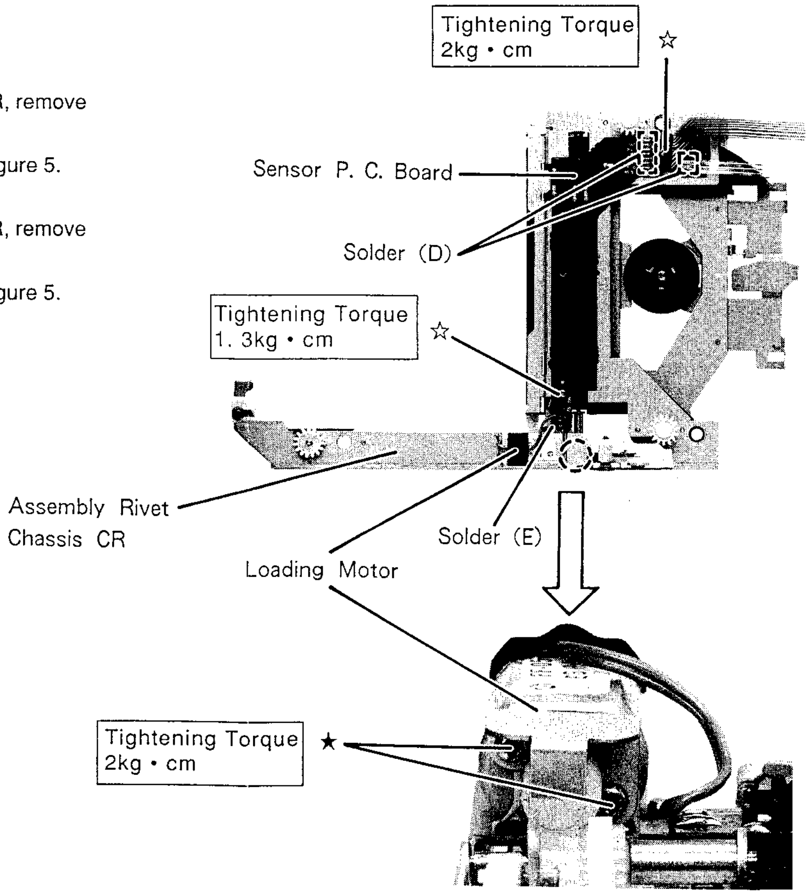

Tightening Torque
2kg • cm
☆
Sensor P. C. Board
Solder (D)
Tightening Torque
1. 3kg • cm
☆
Assembly Rivet
Chassis CR
Solder (E)
Loading Motor
Tightening Torque
2kg • cm
★

Figure 5

10. **Remo**
   (1) Afte
   the
   Figu
   (2) Ren
   two
   (3) Ren
   (4) Ren
11. **Remo**
   (1) Afte
   rem
   (2) Ren

In

12. **Remo**
   (1) Afte
   the
   scre
   (2) Ren

Bracket

○ Tightening Torque 3 ± 0. 2kg • cm

ghtening Torque 5kg • cm

ghtening Torque ‹g • cm

○ Tightening Torque 3 ± 0. 2kg • cm

Assembly Rivet Chassis Base

d Motor

Figure 1

;ivet
e

Figure 2

6. Removal of Assembly Rivet Chassis CR

(1) After Remove seven screws marked "∞", remove the Assembly Rivet Top Chassis and the Assembly Rivet Chassis Base as shown in Figure 3.

7. Removal of Photo P. C. Board

(1) After picking up the Assembly Rivet Chassis CR, remove the solder (C) as shown in Figure 4.

(2) Remove a screw marked "■" as shown in Figure 4.

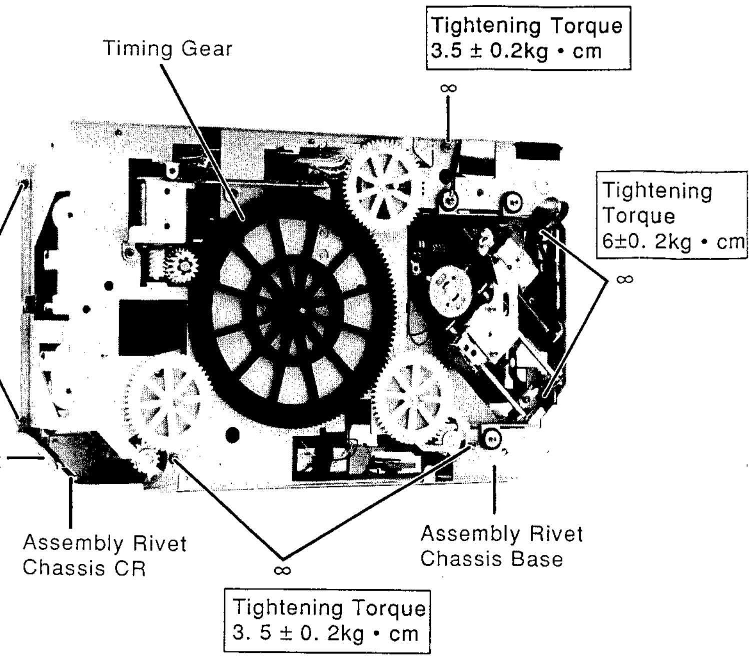

Timing Gear
Tightening Torque 3.5 ± 0.2kg • cm
∞
Tightening Torque 6±0. 2kg • cm
∞
Tightening Torque 6 ± 0. 2kg • cm
∞
Assembly Rivet Top Chassis
Assembly Rivet Chassis CR
∞
Tightening Torque 3. 5 ± 0. 2kg • cm
Assembly Rivet Chassis Base

Figure 3

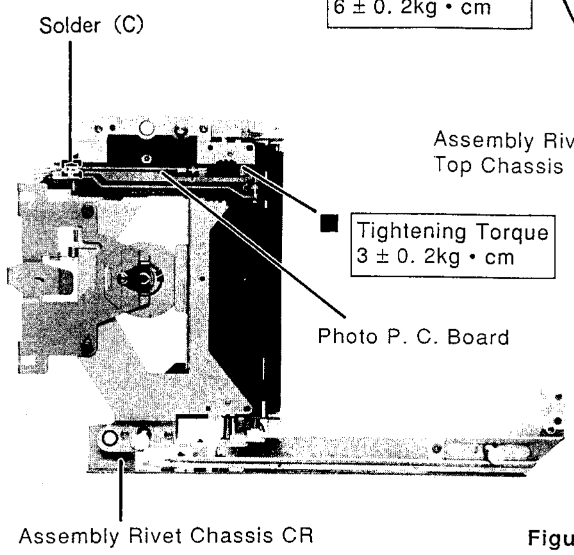

Solder (C)
■ Tightening Torque 3 ± 0. 2kg • cm
Photo P. C. Board
Assembly Rivet Chassis CR

Figure 4

8. Removal of Sensor P. C. Board

(1) After removal of the Assembly Rivet Chassis CR, remove the solder (D) and (E) as shown in Figure 5.

(2) Remove two screws marked "☆" as shown in Figure 5.

9. Removal of Loading Motor

(1) After removal of the Assembly Rivet Chassis CR, remove the solder (E) as shown in Figure 5.

(2) Remove two screws marked "★" as shown in Figure 5.

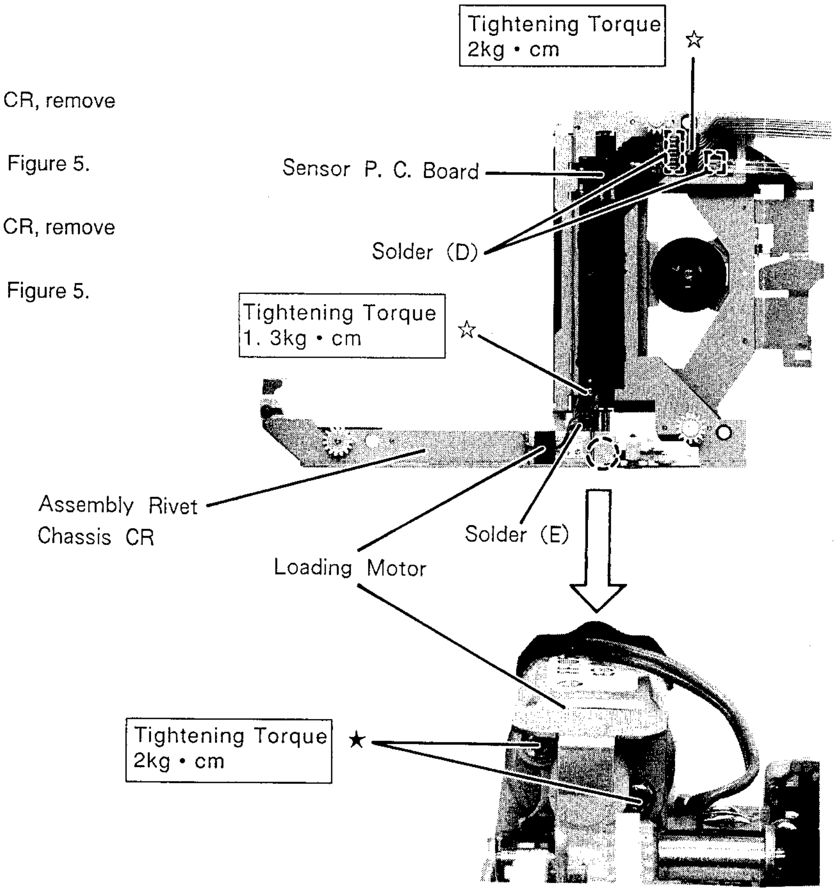

Tightening Torque 2kg • cm ☆
Sensor P. C. Board
Solder (D)
Tightening Torque 1. 3kg • cm ☆
Assembly Rivet Chassis CR
Solder (E)
Loading Motor
Tightening Torque 2kg • cm ★

Figure 5

10. Removal of Elevator Motor

(1) After removal of the Assembly Rivet Chassis CR, remove the timing gear by removing the washer (A) as shown in Figure 6.

(2) Remove the Assembly Rivet Bracket Motor by removing two screws marked "◇" as shown in Figure 6.

(3) Remove the solder (F) as shown in Figure 7.

(4) Remove tow screws marked "◆" as shown in Figure 6.

11. Removal of Interrupt P. C. Board

(1) After removal of the Assembly Rivet Bracket Motor, remove the solder (F) as shown in Figure 7.

(2) Remove two screws marked "#" as shown in Figure 7.

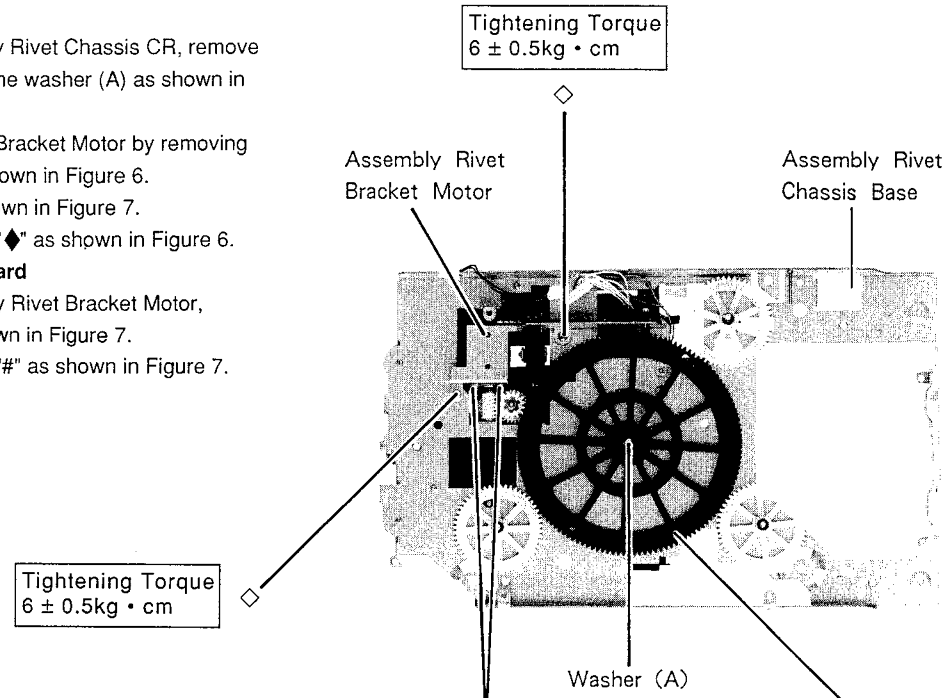

Tightening Torque 6 ± 0.5kg • cm
◇
Assembly Rivet Bracket Motor
Assembly Rivet Chassis Base
Tightening Torque 6 ± 0.5kg • cm ◇
Washer (A)
◆
Timing Gear
Tightening Torque 2. 3 ± 0. 2kg • cm

Figure 6

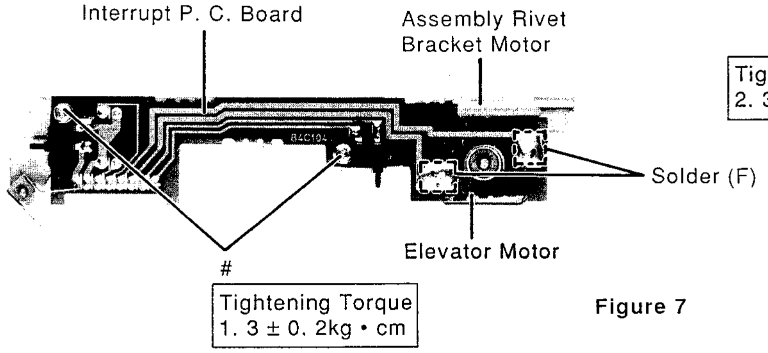

Interrupt P. C. Board
Assembly Rivet Bracket Motor
Solder (F)
Elevator Motor
#
Tightening Torque 1. 3 ± 0. 2kg • cm

Figure 7

12. Removal of Magazine Photo P. C. Board

(1) After removal of the Assembly Rivet Chassis CR, remove the Assembly Rivet Chassis Magazine by removing three screws marked "※" as shown in Figure 8.

(2) Remove two screws marked "◎" as shown in Figure 8.

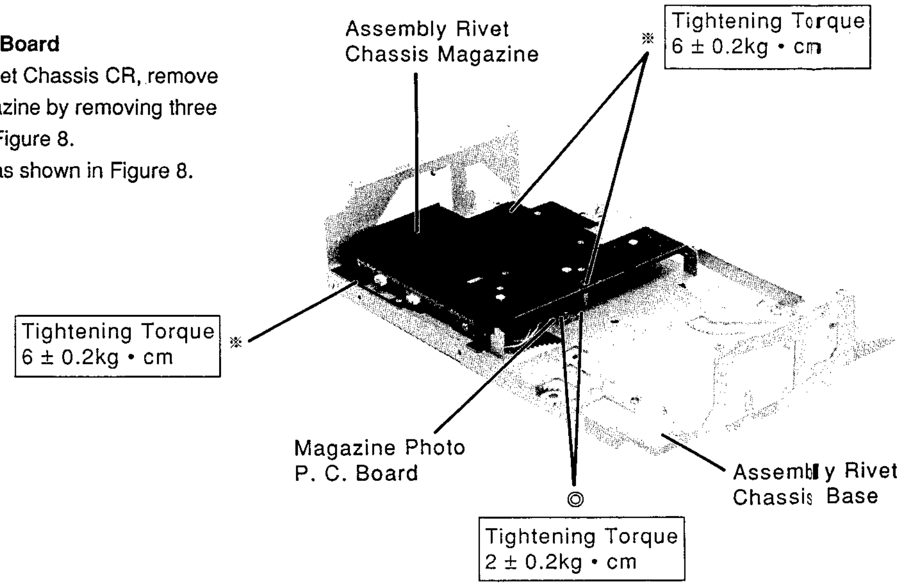

Assembly Rivet Chassis Magazine
※ Tightening Torque 6 ± 0.2kg • cm
Tightening Torque 6 ± 0.2kg • cm ※
Magazine Photo P. C. Board
◎
Tightening Torque 2 ± 0.2kg • cm
Assembly Rivet Chassis Base

Figure 8

Disassembly Instructions

<DR24A020/02A/030/040 Model Only>

1. **Removal of Pick-Up Unit**
   (1) Remove three screws marked "O" as shown in Figure 9.
2. **Removal of Sled Motor**
   (1) After removal of the pick-up unit, remove the motor bracket with sled motor by removing the solder (A) and two screws marked "X" as shown in Figure 9.
   (2) Remove the solder (B) and a screw marked "□" as shown in Figure 9.
3. **Removal of Head Unit <DR24A020 Model Only>**
   (1) After removal of the motor bracket, remove the shaft bracket and the screw bracket by removing two screws marked "△" as shown in Figure 9.

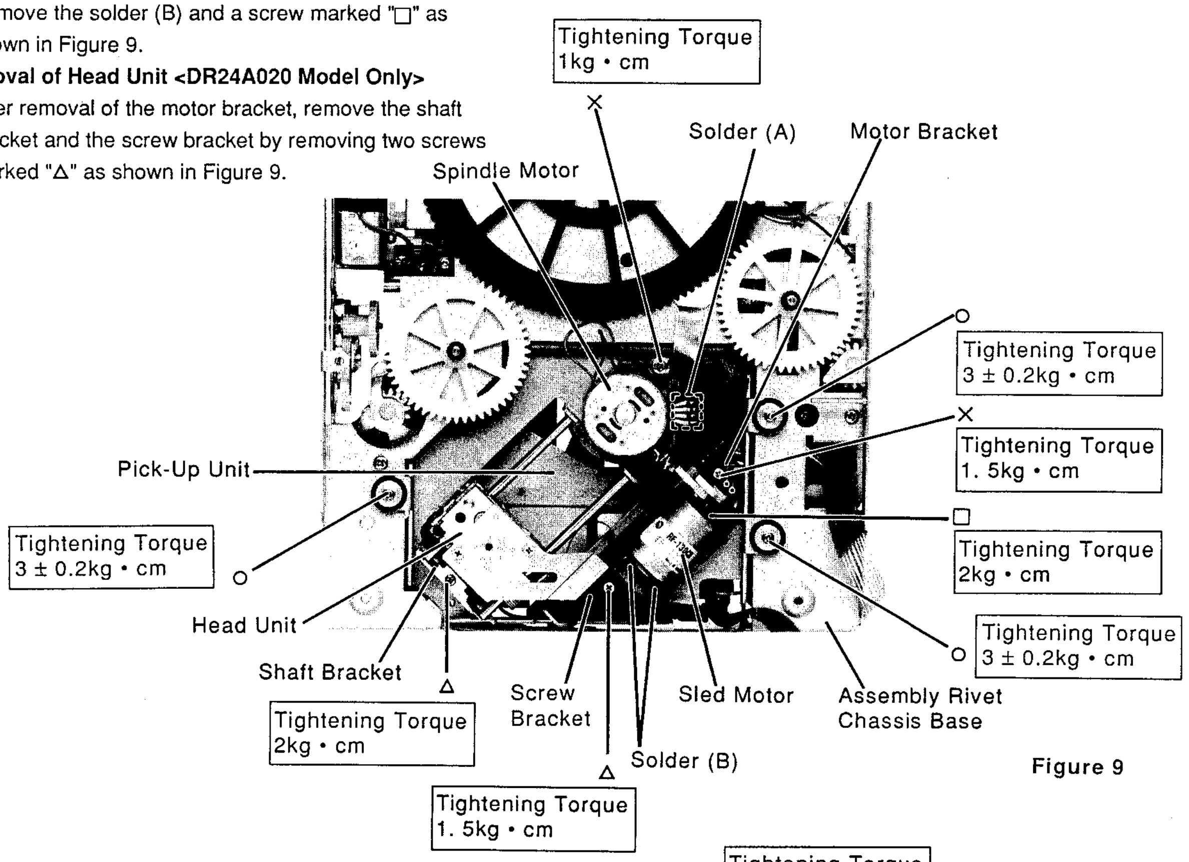

Tightening Torque
1kg • cm
×
Solder (A)
Motor Bracket
Spindle Motor
O
Tightening Torque
3 ± 0.2kg • cm
×
Tightening Torque
1. 5kg • cm
Pick-Up Unit
□
Tightening Torque
2kg • cm
Tightening Torque
3 ± 0.2kg • cm
O
O
Tightening Torque
3 ± 0.2kg • cm
Head Unit
Shaft Bracket
△
Screw
Bracket
Sled Motor
Assembly Rivet
Chassis Base
Tightening Torque
2kg • cm
△
Solder (B)
Tightening Torque
1. 5kg • cm

Figure 9

3. **Removal of Head Unit <DR24A02A/030/040 Model Only>**
   (1) After removal of the motor bracket remove the screw bracket by removing a screw marked "◉" as shown in Figure 10.
   (2) Remove four screws marked "⊗" and four shaft Stoppers as shown in Figure 10.

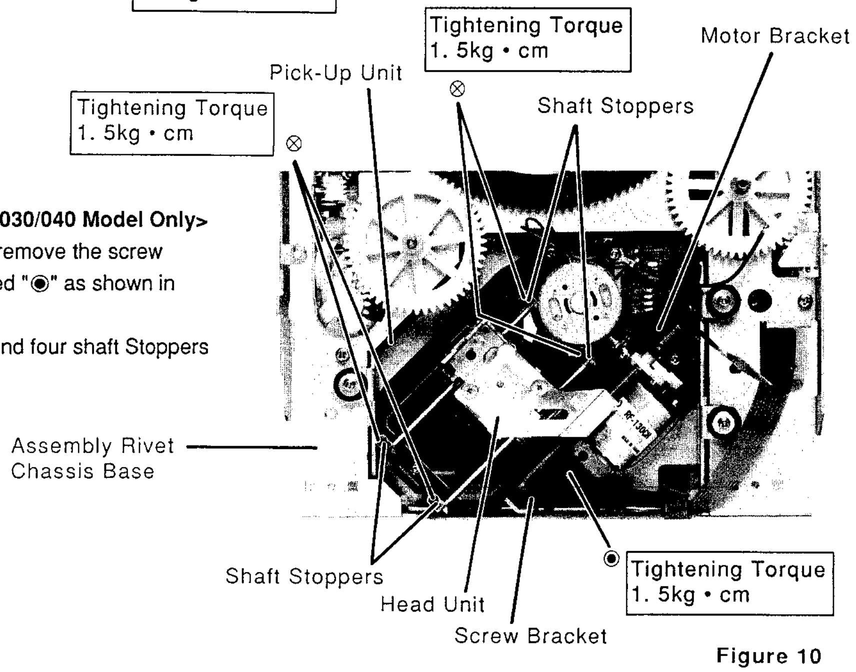

Tightening Torque
1. 5kg • cm
Motor Bracket
Pick-Up Unit
Tightening Torque
1. 5kg • cm
⊗
Shaft Stoppers
⊗
Assembly Rivet
Chassis Base
◉
Tightening Torque
1. 5kg • cm
Shaft Stoppers
Head Unit
Screw Bracket

Figure 10

4. **Removal of Magazine Photo**
   (1) Remove a screw marked "●" as shown in Figure 11.
5. **Removal of Switch P. C. Board**
   (1) Remove a screw marked "▲" as shown in Figure 11.
   (2) Remove the Hook (A) as shown in Figure 11.

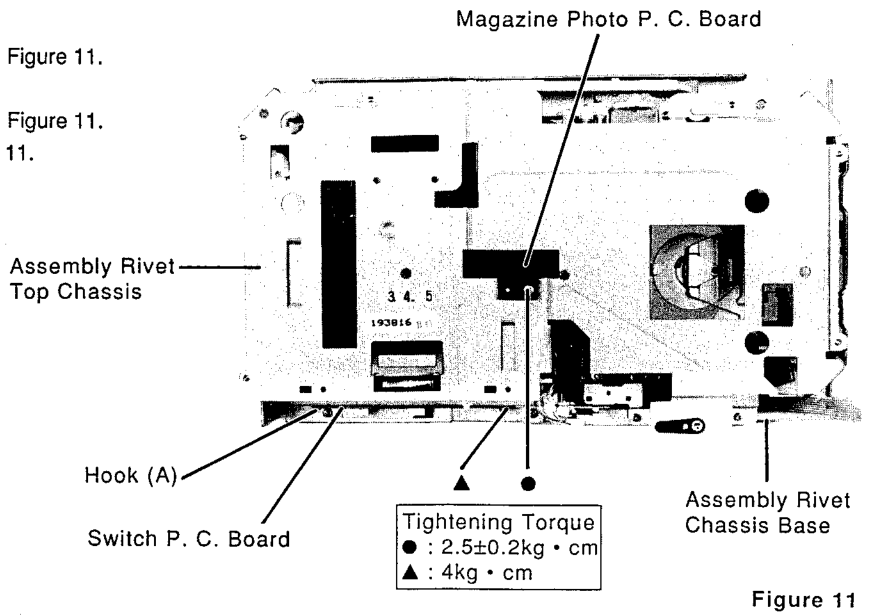

Magazine Photo P. C. Board
Assembly Rivet
Top Chassis
Hook (A)
Switch P. C. Board
▲
●
Tightening Torque
● : 2.5±0.2kg • cm
▲ : 4kg • cm
Assembly Rivet
Chassis Base

Figure 11

6. **Removal of Assembly Rivet Chassis CR**
   (1) After remove seven screws marked "∞", remove the Assembly Rivet Top Chassis and the Assembly Rivet Chassis Base as shown in Figure 12.
7. **Removal of LED P. C. Board**
   (1) After picking up the Assembly Rivet Chassis CR, remove the solder (C) as shown in Figure 13.
   (2) Remove a screw marked "■" as shown in Figure 13.

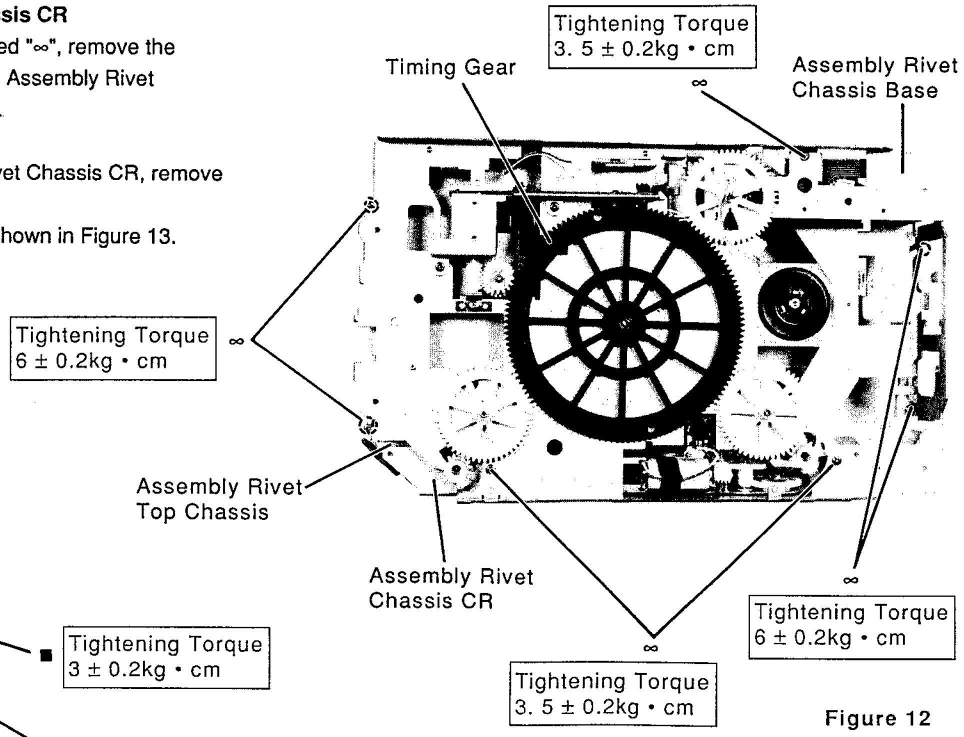

Tightening Torque
3. 5 ± 0.2kg • cm
Timing Gear
Assembly Rivet
Chassis Base
∞
Tightening Torque
6 ± 0.2kg • cm
∞
Assembly Rivet
Top Chassis
Assembly Rivet
Chassis CR
∞
Tightening Torque
6 ± 0.2kg • cm
∞
Tightening Torque
3. 5 ± 0.2kg • cm

Figure 12

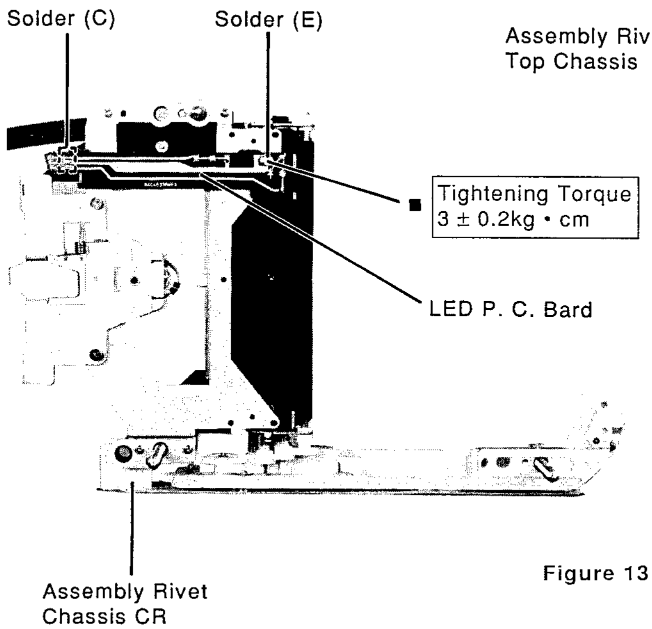

Solder (C)
Solder (E)
■
Tightening Torque
3 ± 0.2kg • cm
LED P. C. Bard
Assembly Rivet
Chassis CR

Figure 13

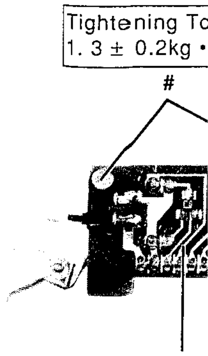
8. **Removal c**
   (1) After rem
   the solde
   (2) Remove
   "☆" as sh

Note: When re
damage

9. **Removal c**
   (1) After rem
   the solde
   (2) Remove

10. **Removal c**
   (1) After rem
   the timin
   Figure 1
   (1) After rem
   the timin
   Figure 1
   (2) Remove
   two scre
   (3) Remove
   (4) Remove

11. **Removal c**
   (1) After rem
   remove t
   (2) Remove


Tightening To
1. 3 ± 0.2kg •
#
Interrupt P. C.

4. Removal of Magazine Photo

(1) Remove a screw marked "●" as shown in Figure 11.

5. Removal of Switch P. C. Board

(1) Remove a screw marked "▲" as shown in Figure 11.

(2) Remove the Hook (A) as shown in Figure 11.

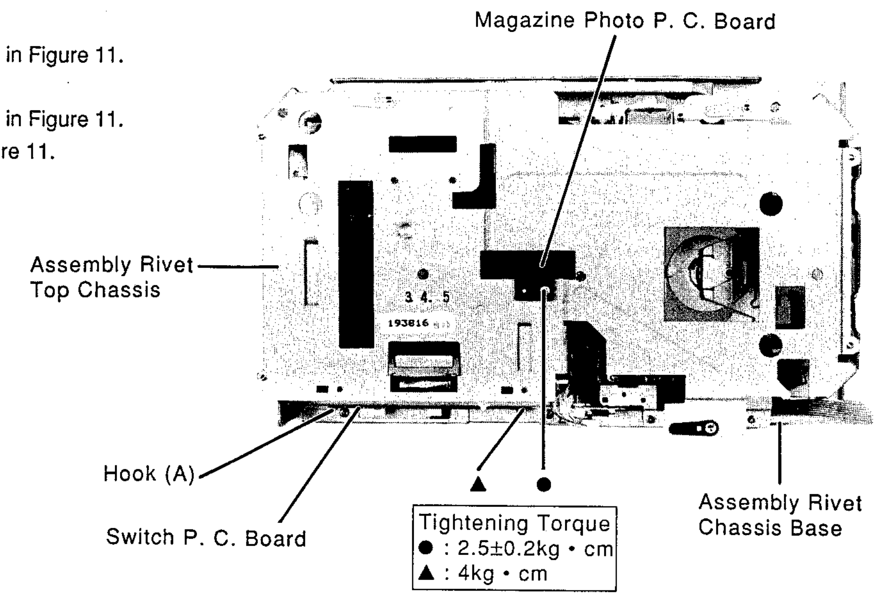

Magazine Photo P. C. Board
Assembly Rivet Top Chassis
Hook (A)
Switch P. C. Board
▲ ●
Tightening Torque
● : 2.5±0.2kg • cm
▲ : 4kg • cm
Assembly Rivet Chassis Base

Figure 11

6. Removal of Assembly Rivet Chassis CR

(1) After remove seven screws marked "∞", remove the Assembly Rivet Top Chassis and the Assembly Rivet Chassis Base as shown in Figure 12.

7. Removal of LED P. C. Board

(1) After picking up the Assembly Rivet Chassis CR, remove the solder (C) as shown in Figure 13.

(2) Remove a screw marked "■" as shown in Figure 13.

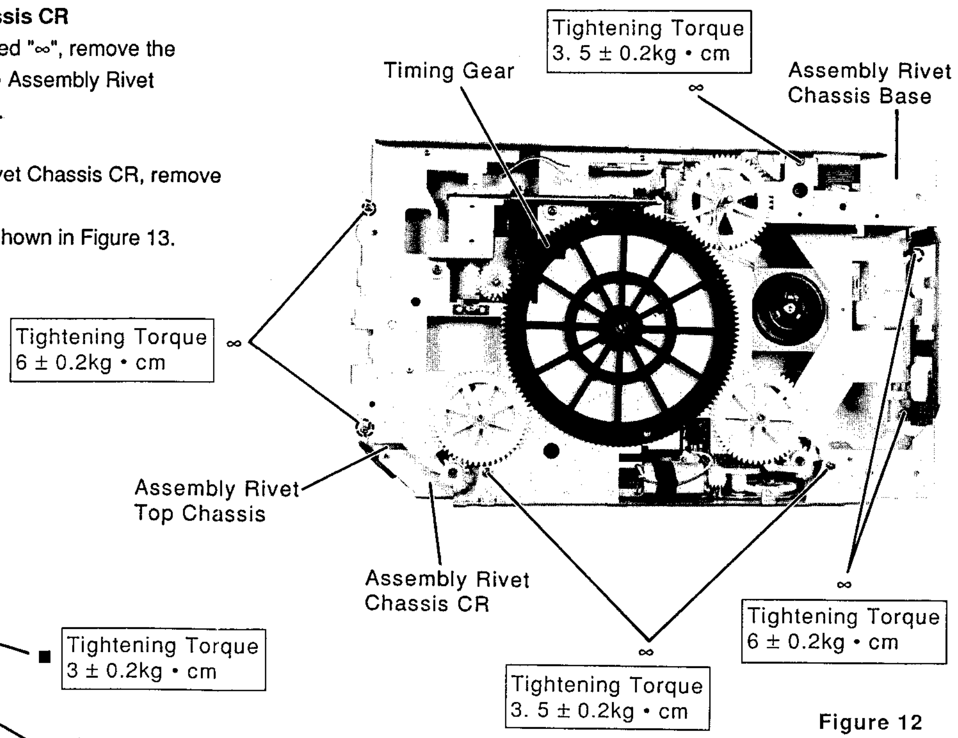

Tightening Torque
3. 5 ± 0.2kg • cm
∞
Timing Gear
Assembly Rivet Chassis Base
Tightening Torque
6 ± 0.2kg • cm
∞
Assembly Rivet Top Chassis
Assembly Rivet Chassis CR
∞
Tightening Torque
6 ± 0.2kg • cm
∞
Tightening Torque
3. 5 ± 0.2kg • cm

Figure 12

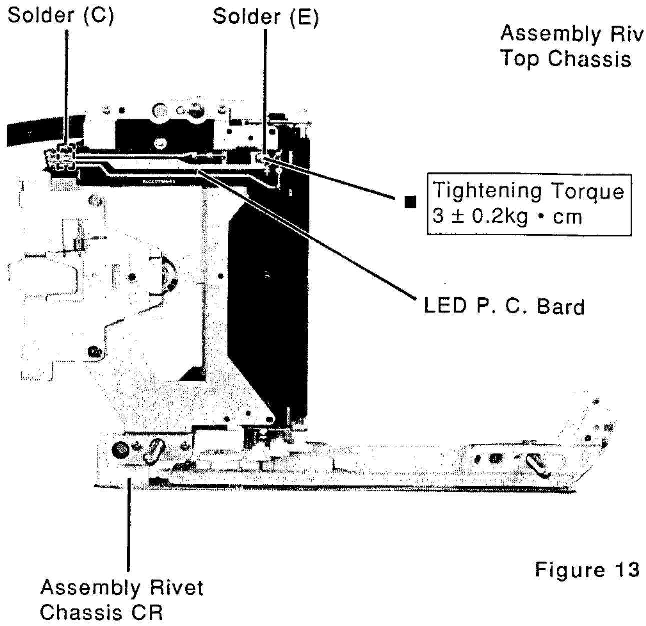

Solder (C)
Solder (E)
■
Tightening Torque
3 ± 0.2kg • cm
LED P. C. Bard
Assembly Rivet Chassis CR

Figure 13

8. Removal of Sensor P. C. Board

(1) After removal of the Assembly Rivet Chassis CR, remove the solder (E) and (F) as shown in Figure 14.

(2) Remove Elevator Screw Shaft and two screws marked "☆" as shown in Figure 14.

Note: When removing the sensor P. C. Board, be careful not to damage the Photo-Transistor.

9. Removal of Loading Motor

(1) After removal of the Assembly Rivet Chassis CR, remove the solder (F) as shown in Figure 14.

(2) Remove two screws marked "★" as shown in Figure 14.

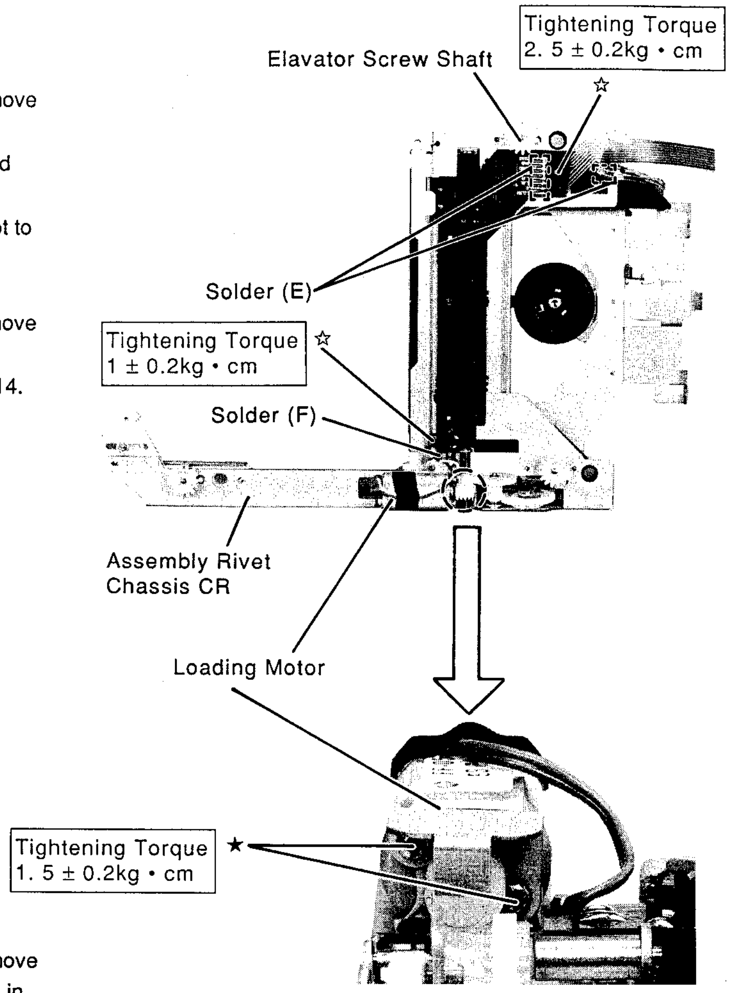

Tightening Torque
2. 5 ± 0.2kg • cm
Elavator Screw Shaft
☆
Solder (E)
Tightening Torque
1 ± 0.2kg • cm
☆
Solder (F)
Assembly Rivet Chassis CR
Loading Motor
Tightening Torque
1. 5 ± 0.2kg • cm
★

Figure 14

10. Removal of Elevator Motor

(1) After removal of the Assembly Rivet Chassis CR, remove the timing gear by removing the washer (A) as shown in Figure 15. **<DR24A020/02A Model Only>**

(1) After removal of the Assembly Rivet Chassis CR, remove the timing gear by removing the Ring "E" as shown in Figure 15. **<DR24A030/040 Model Only>**

(2) Remove the Assembly Rivet Bracket Motor by removing two screws marked "◇" as shown in Figure 15.

(3) Remove the solder (G) as shown in Figure 16.

(4) Remove two screws marked "◆" as shown in Figure 15.

11. Removal of Interrupt P. C. Board

(1) After removal of the Assembly Rivet Bracket Motor, remove the solder (G) as shown in Figure 16.

(2) Remove two screws marked "#" as shown in Figure16.

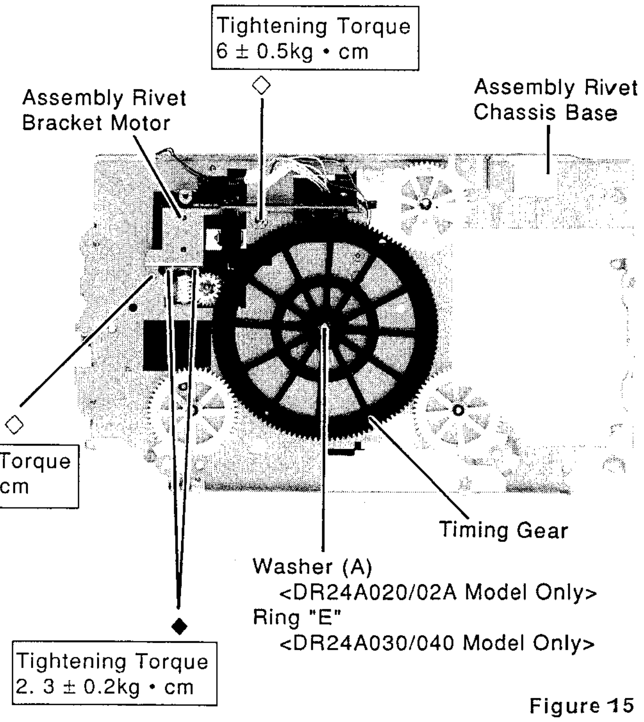

Tightening Torque
6 ± 0.5kg • cm
◇
Assembly Rivet Bracket Motor
Assembly Rivet Chassis Base
◇
Tightening Torque
6 ± 0.5kg • cm
Timing Gear
Washer (A)
<DR24A020/02A Model Only>
Ring "E"
<DR24A030/040 Model Only>
◆
Tightening Torque
2. 3 ± 0.2kg • cm

Figure 15

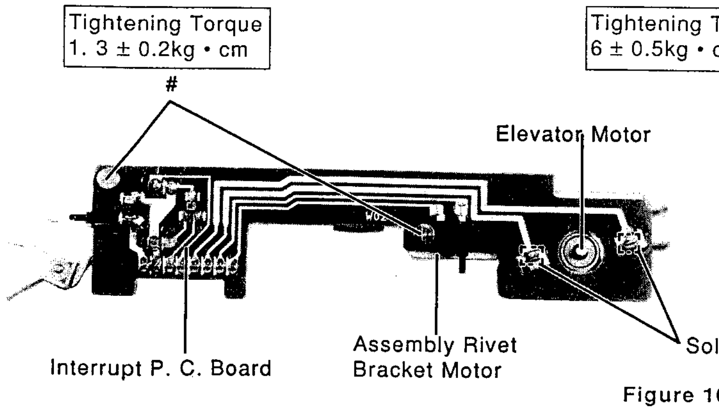

Tightening Torque
1. 3 ± 0.2kg • cm
#
Elevator Motor
Interrupt P. C. Board
Assembly Rivet Bracket Motor
Solder (G)

Figure 16

12. Removal of Magazine LED P. C. Board

(1) After removal of the Assembly Rivet Chassis CR, remove the Assembly Rivet Chassis Magazine by removing three screws marked "※" and the Hook (B) as shown in Figure 17.

(2) Remove a screw marked "◎" as shown in Figure 17.

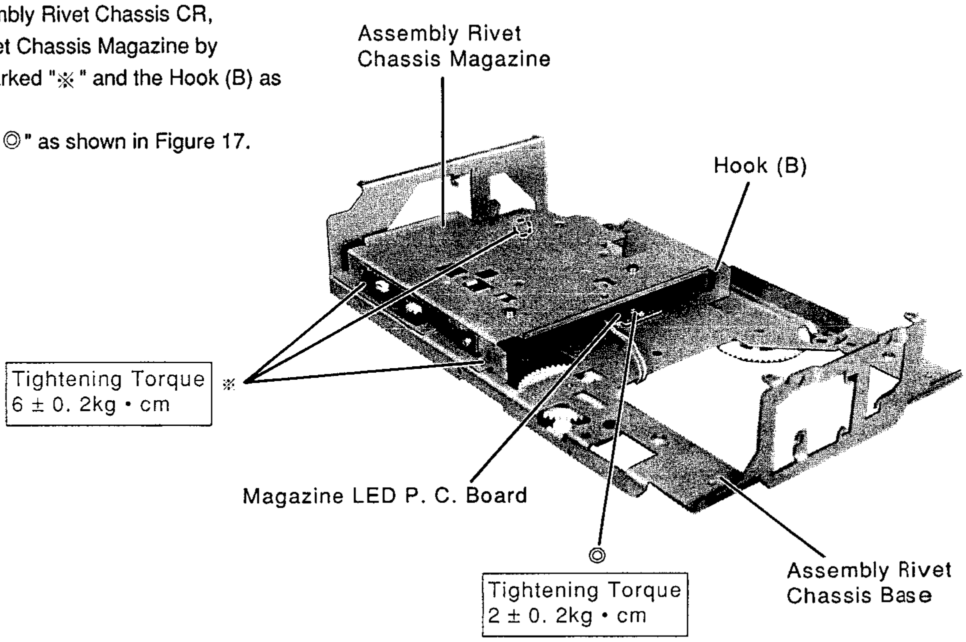

Assembly Rivet
Chassis Magazine
Hook (B)
Tightening Torque
6 ± 0. 2kg • cm
※
Magazine LED P. C. Board
◎
Tightening Torque
2 ± 0. 2kg • cm
Assembly Rivet
Chassis Base

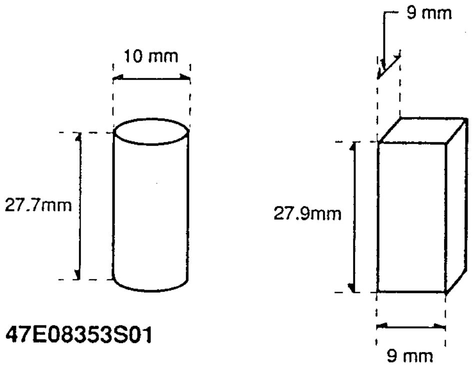
Figure 17

Adjusting method for Elevator Height

1. Remove two lock washers and a ring "E", than remove three gears (D).
2. Turn three gears (E) and move the CR chassis to F direction (to the position of CD magazine).
3. Insert the adjustment jig (☆) as shown in Figure 18 between the chassis and the CR chassis as shown in Figure 19.
   - ★ At the same time, insert the adjustment jig near each of three gears (E).
4. Adjust each of gears (E) to minimum gap and to getting smooth moving of each adjustment jig.
5. Adjust the H hole of timing gear to fit with the hole of chassis.
6. Mount three gears (D).
   - ★ At this time, pay attention that the position between the gear (E) adjusted and Timing gear does not make gap.
7. Fix three gears (D) with two lock washers and a ring "E".

(☆) : 47E08353S01 (DR24A010 Model Only)
01V00346S01 (DR24A020/02A/030/040 Model Only)

Adjustment Jig


10 mm
27.7mm
9 mm
27.9mm
9 mm

47E08353S01

01V00346S01
(Three pieces are supplied.)

Figure 18

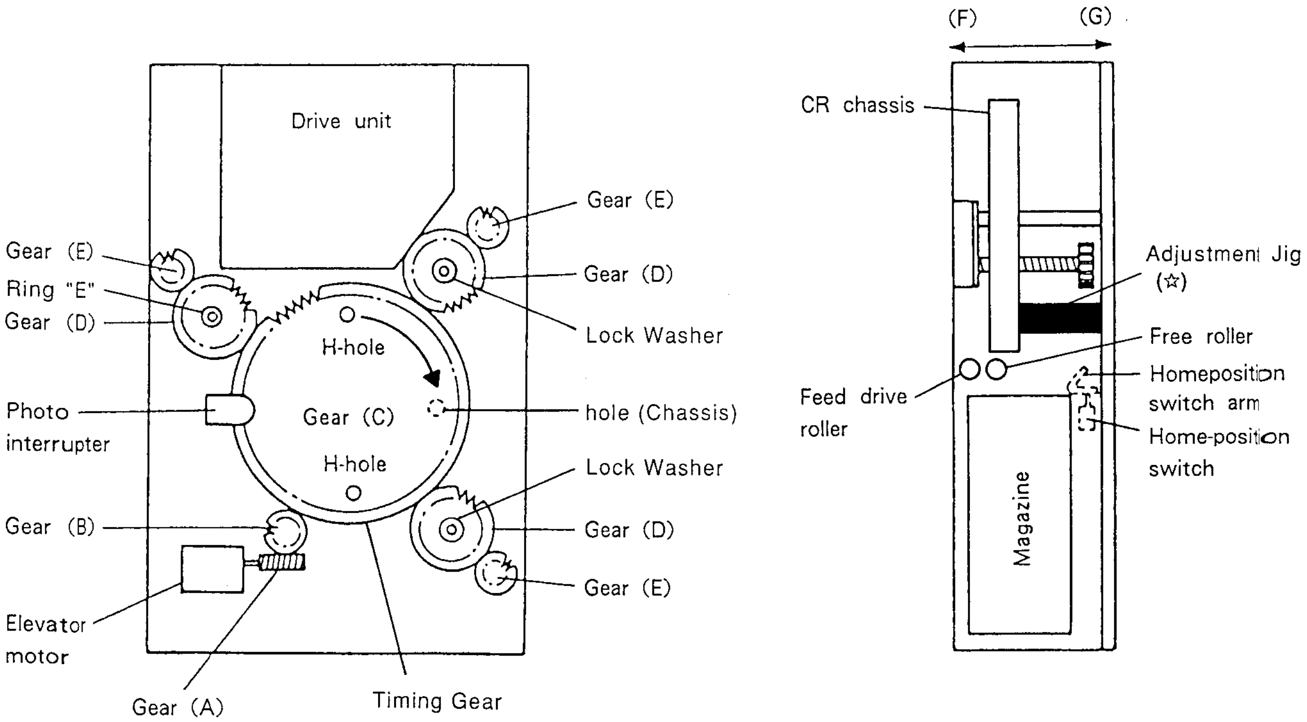

Drive unit
Gear (E)
Ring "E"
Gear (D)
Photo interrupter
Gear (B)
Elevator motor
Gear (A)
Timing Gear
H-hole
Gear (C)
H-hole
Gear (E)
Gear (D)
Lock Washer
hole (Chassis)
Lock Washer
Gear (D)
Gear (E)
(F)
(G)
CR chassis
Adjustment Jig
(☆)
Free roller
Homeposition switch arm
Home-position switch
Feed drive roller
Magazine

Figure 19

Mechanism Function Description

Function	Step	Description	Illustration
Magazine Insertion	①	When the magazine is inserted, the eject lever is pushed in.	Figure 20
	②	The eject lever causes the magazine lock arm to move.	
	③	The magazine lock arm causes the magazine to lock and the magazine lock switch to be switched on.	

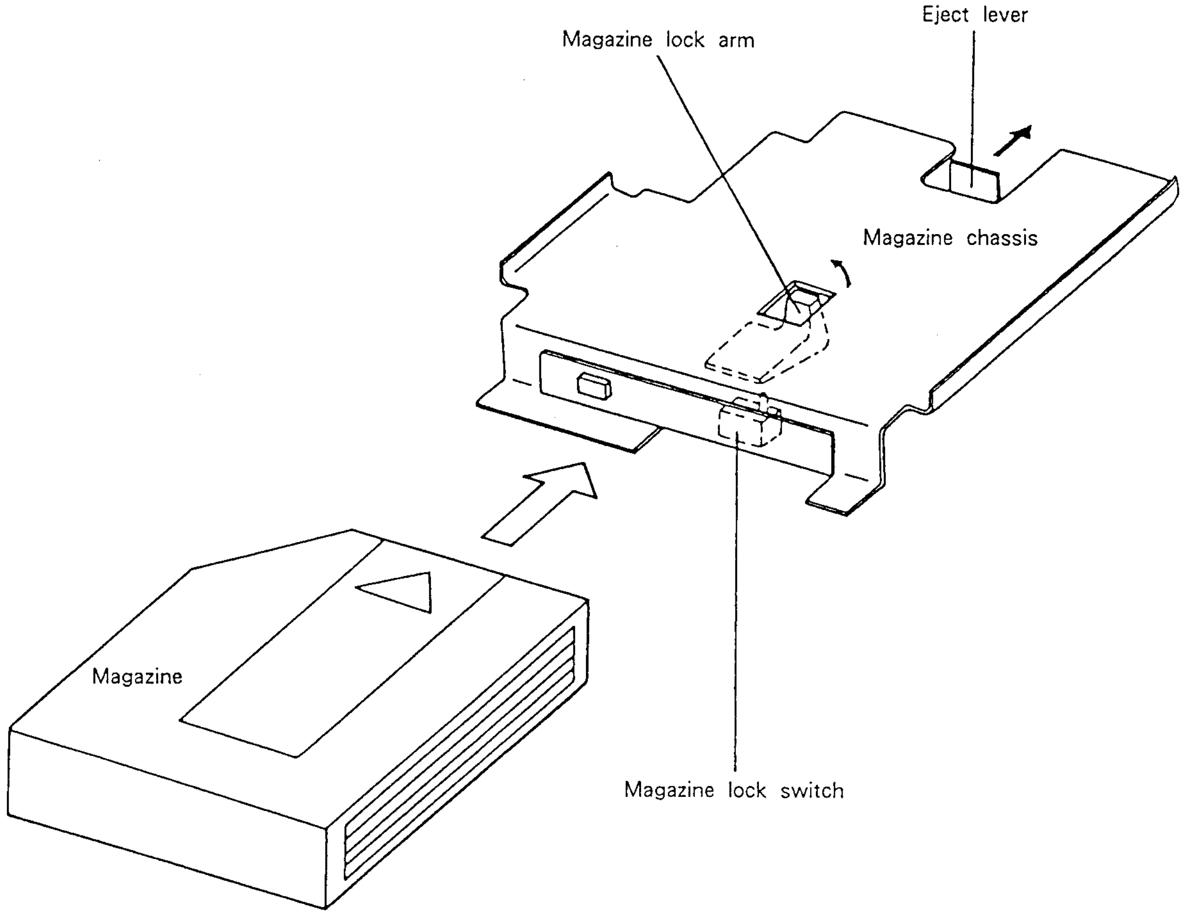

Eject lever
Magazine lock arm
Magazine chassis
Magazine
Magazine lock switch

Figure 20

Function	Step	Description	Illustration
Disc Loading	①	The elevator motor rotates.	Figure 21
	②	The rotation is transmitted to gears (A), (B), (C), (D) and (E).	
	③	The CR chassis is moved in the (F) direction by rotation of gear (E).	
	④	The photo-interrupter counts the H-holes on gear (C) to control the movement distance of the CR chassis.	
	⑤	The CR chassis is stopped at the position of the first disc in the magazine. * For the 2nd through 6th discs the movement distance of the CR chassis is the only thing that changes : the operation is the same.	
	⑥	The loading motor rotates. (The loading motor can rotate forward and in reverse.)	
	⑦	The rotation is transmitted to gears (I), (J), (K) and (L).	
	⑧	Simultaneous with the action of Step (7), the rotation is transmitted to gears (I), (J), (M), (N) and (O).	
	⑨	The rotation of gear (L) causes the disc eject lever to make a back-and-forth movement in the (P) and (Q) directions.	
	⑩	The disc eject lever causes the disc to be ejected from the magazine.	
	⑪	Since gear (O) and the feed drive roller are on the same axle, the rotation of gear (O) will cause the feed drive roller to rotate.	Figure 22
	⑫	The disc is sandwiched between the feed drive roller and the free roller and the disc moves in the direction of the clamper.	
	⑬	Photosensors (1), (2) and (3) are consecutively blocked by the disc and finally, only photosensor (3) is a blocked condition.	Figure 21
	⑭	The loading motor stops upon the judgment that the disc has entered.	
	⑮	The elevator motor rotates. (Rotation is in the opposite direction of Step (1). The elevator motor can rotate forward and in reverse.)	
	⑯	The rotation is transmitted to gears (A), (B), (C) and (D).	
	⑰	The rotation of gear (E) causes the CR chassis to move in the (G) direction.	
	⑱	The movement of the CR chassis causes the clamper to move and clamp the disc.	
	⑲	The movement of the CR chassis causes the home-position switch arm to move, and the home-position switch is switched on.	
	⑳	The photo-interrupter counts the H-holes on gear (C), and the elevator motor is stopped upon judgment that the CR chassis has reached the home position.	

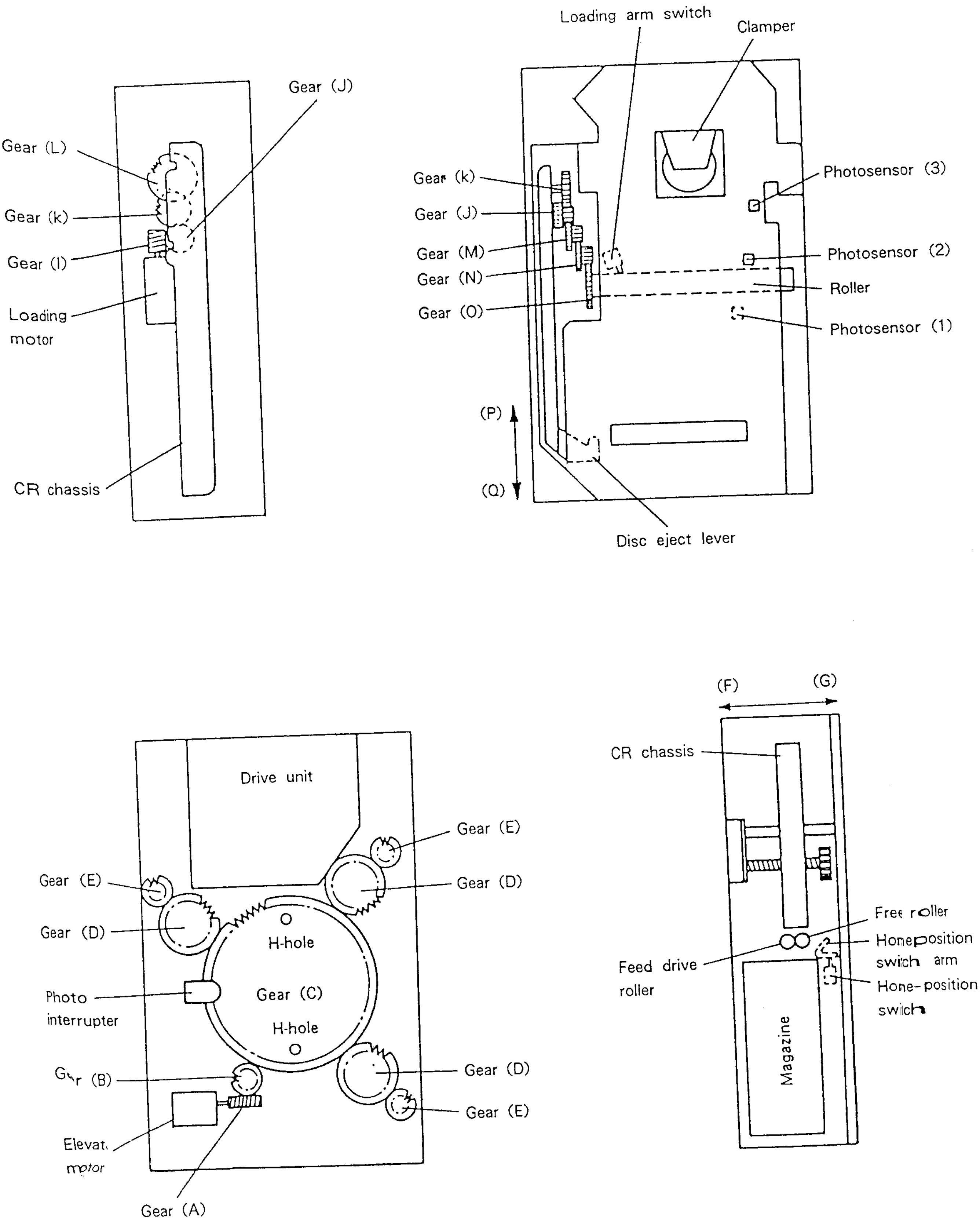

Gear (J)
Gear (L)
Gear (k)
Gear (I)
Loading motor
CR chassis
Loading arm switch
Clamper
Gear (k)
Gear (J)
Gear (M)
Gear (N)
Gear (O)
Photosensor (3)
Photosensor (2)
Roller
Photosensor (1)
(P)
(Q)
Disc eject lever
Drive unit
Gear (E)
Gear (D)
Gear (E)
Gear (D)
H-hole
Gear (C)
H-hole
Photo interrupter
Gear (B)
Gear (D)
Gear (E)
Elevator motor
Gear (A)
(F)
(G)
CR chassis
Free roller
Homeposition switch arm
Feed drive roller
Home-position switch
Magazine

Figure 21

Function	Step	Description	Illustration
Play	①	The spidle motor rotates the disc.	Figure 23
	②	The rotation of the sled motor is transmitted through the gears to the feed screw and causes the pickup to move.	
	③	The lead-in position of the disc is detected by the inner limit position switch and the reading of the disc data begins.	
Return of the disc to the magazine	①	The elevator motor rotates.	Figure 21
	②	The rotation is transmitted to gears (A), (B), (C), (D) and (E).	
	③	The CR chassis is moved in the (F) direction by the rotation of gear (E).	
	④	The clamper is removed.	
	⑤	The photo-interrupter counts the H-holes on gear (C) to control the movement distance of the CR chassis.	
	⑥	The disc is sandwiched between the feed drive roller and the free roller.	
	⑦	The CR chassis is stopped at the position of the first disc in the magazine. * For the 2nd through 6th disc the movement distance of the CR chassis is the only thing that changes : the operation is the same.	
	⑧	The loading motor rotates.	Figure 24
	⑨	The rotation is transmitted to gears (I), (J), (M), (N) and (O).	Figure21
	⑩	The rotation of gear (O) causes the feed drive roller to rotate and to move in the direction of the disc magazine.	
	⑪	Blockage of photosensor (3) by the disc is cancelled.	
	⑫	The movement of the disc blocks photosensors (2) and (1) and cancels the blocking.	
	⑬	The blocking of photosensor (1) is cancelled and the disc is judged to have been housed in the magazine.	
	⑭	The loading motor stops.	

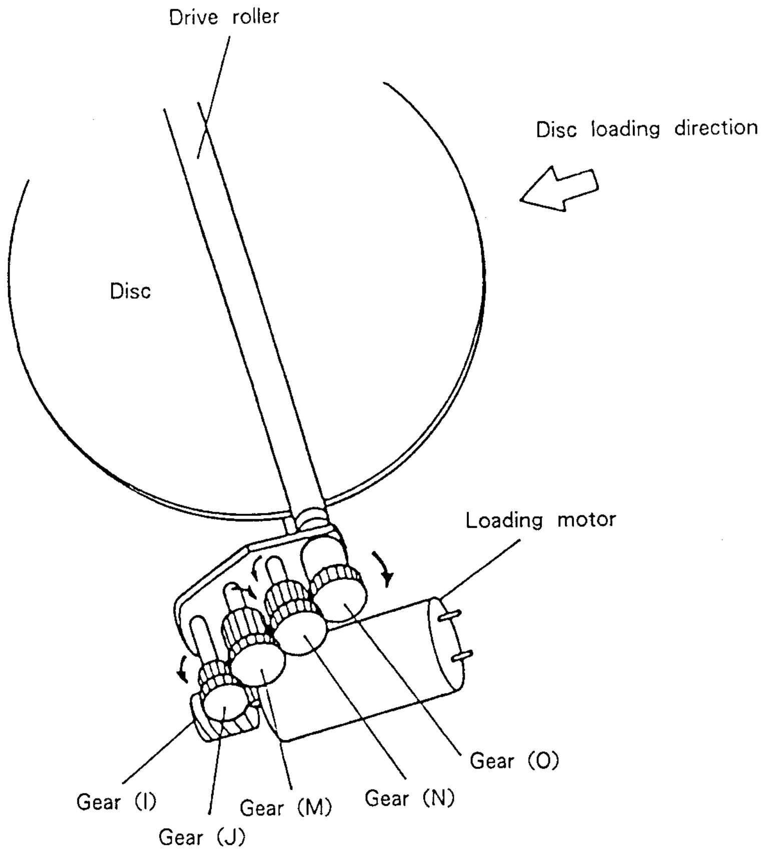

Drive roller
Disc loading direction
Disc
Loading motor
Gear (O)
Gear (I)
Gear (M)
Gear (N)
Gear (J)

Figure 22

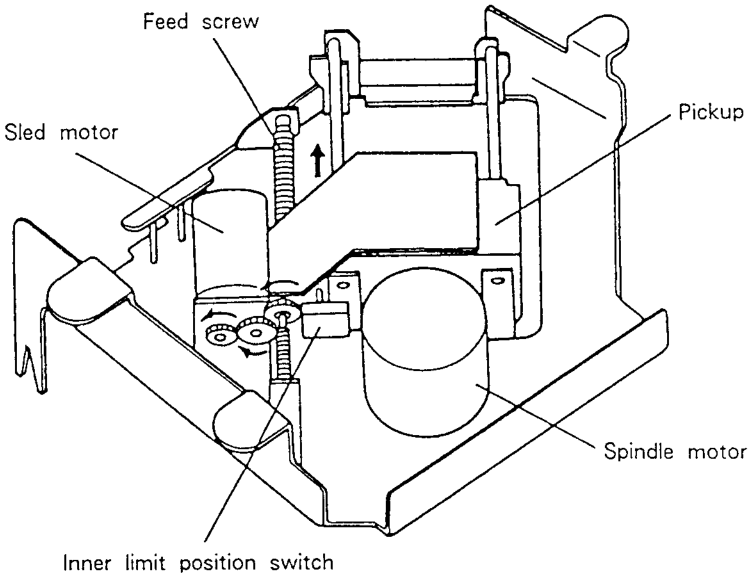

Feed screw
Sled motor
Pickup
Spindle motor
Inner limit position switch

Figure 23

Function	Step	Description	Illustration
Magazine Ejection	①	Press the eject switch.	Figure 25
	②	The elevator motor rotates.	Figure 21
	③	The rotation is transmitted to gears (A), (B), (C), (D) and (E).	
	④	The CR chassis is moved in the (G) direction by the rotation of gear (E).	
	⑤	The movement of the CR chassis causes the home-position switch arm to move, and the home-position switch is switched on.	
	⑥	The photo-interrupter counts the H-holes on gear (C), and the elevator motor is stopped upon judgment that the CR chassis has reached the home position.	
	⑦	The loading motor rotates.	
	⑧	The rotation is transmitted to gears (J), (K), and (L).	
	⑨	The rotation of gear (L) causes the disc eject lever to make a back-and-forth movement in the (P) and (Q) directions.	
	⑩	The disc eject lever causes the eject arm to move.	Figure 25
	⑪	The eject arm causes the eject lever to move, the magazine lock arm is released and the magazine is ejected.	
	⑫	The magazine lock switch is switched off and there is a judgment that the magazine has been ejected.	Figure 21

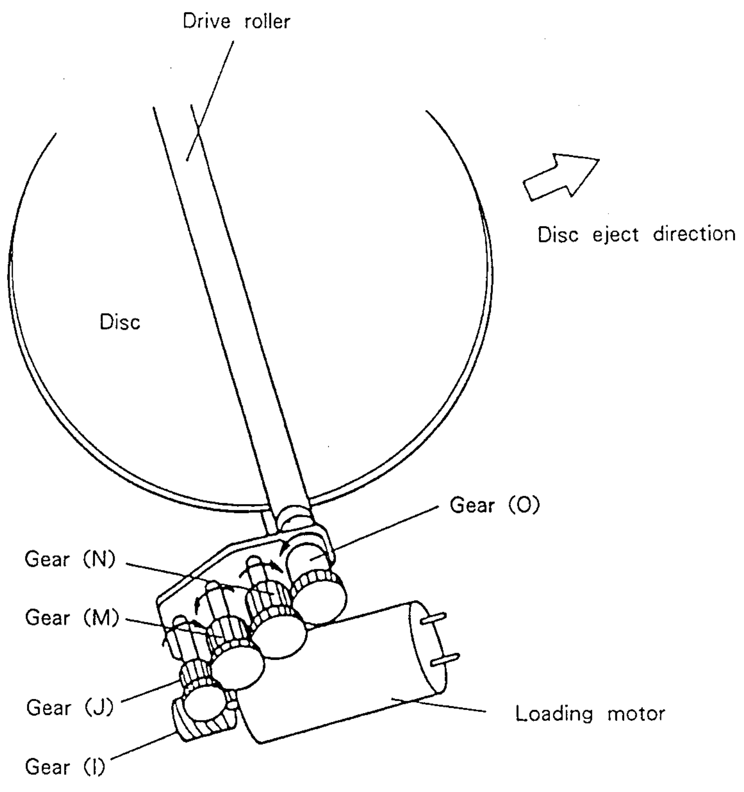

Drive roller
Disc eject direction
Disc
Gear (O)
Gear (N)
Gear (M)
Gear (J)
Gear (I)
Loading motor

Figure 24

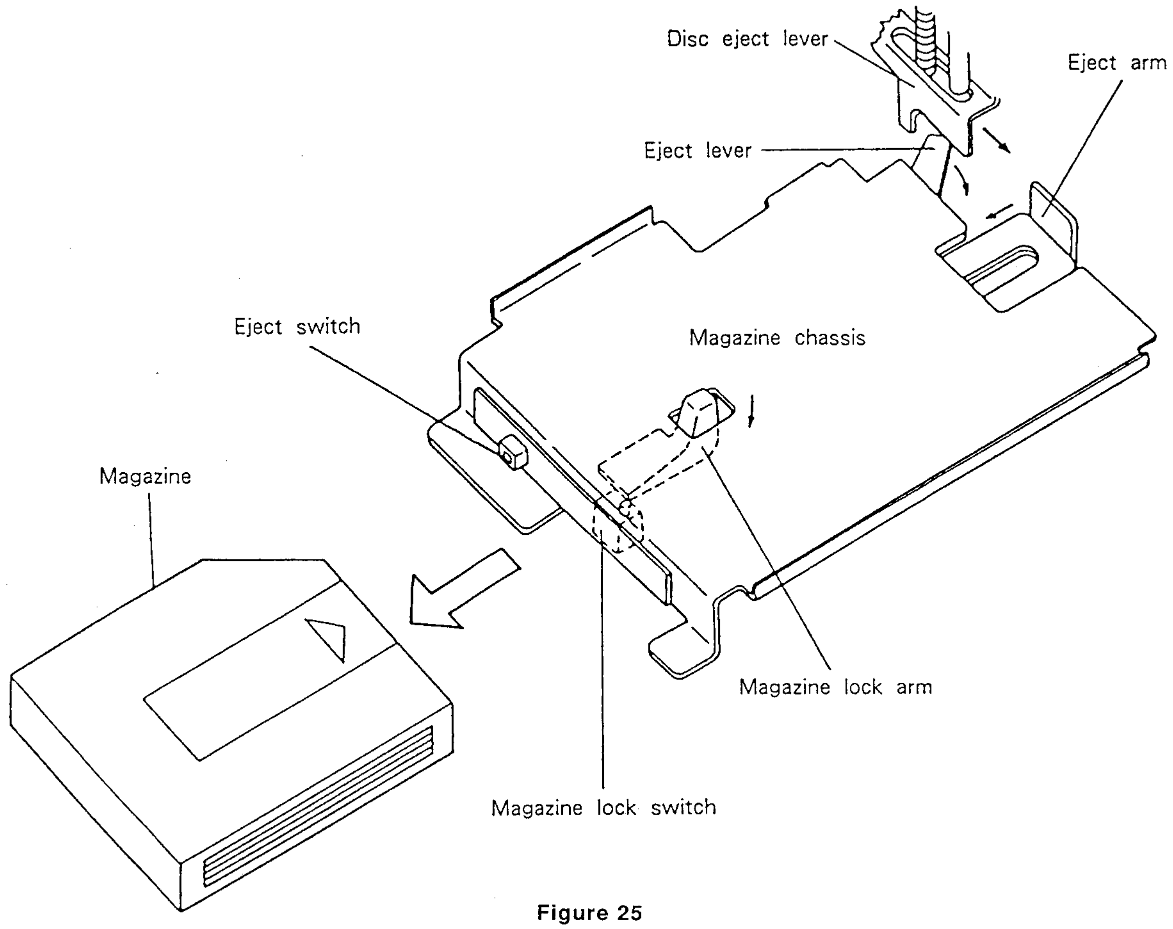
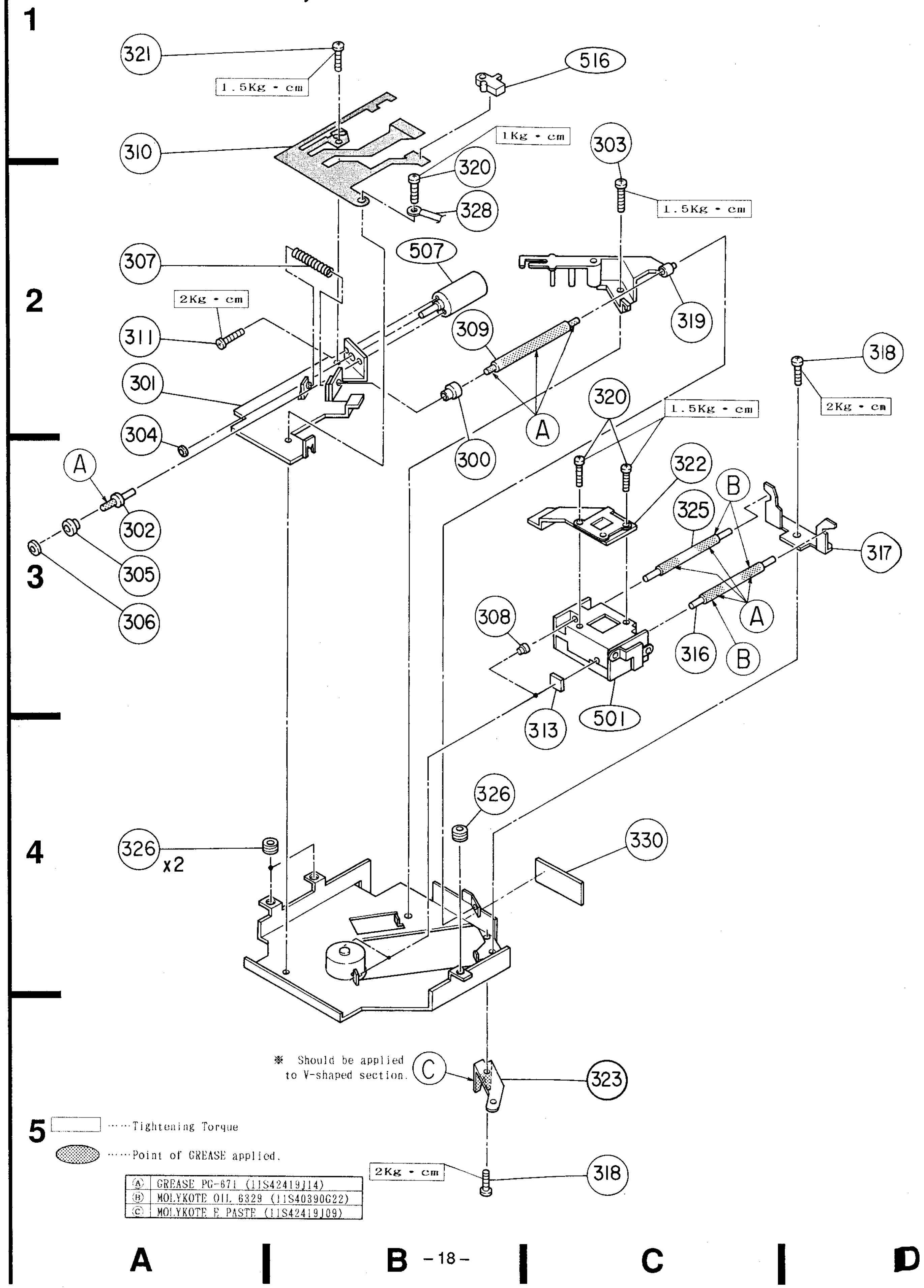

Disc eject lever
Eject arm
Eject lever
Eject switch
Magazine chassis
Magazine
Magazine lock arm
Magazine lock switch

Figure 25

Exploded View (CD Mechanism) (1/2)

- For DR24A010 Model only


1
2
3
4
5
321
1.5Kg・cm
516
310
1Kg・cm
303
320
328
1.5Kg・cm
507
307
2Kg・cm
311
309
319
301
318
2Kg・cm
320
1.5Kg・cm
304
300
A
A
322
B
325
302
317
305
308
A
306
316
B
313
501
326
326
x2
330
323
2Kg・cm
318
A
B
C
D

※ Should be applied to V-shaped section. (C)

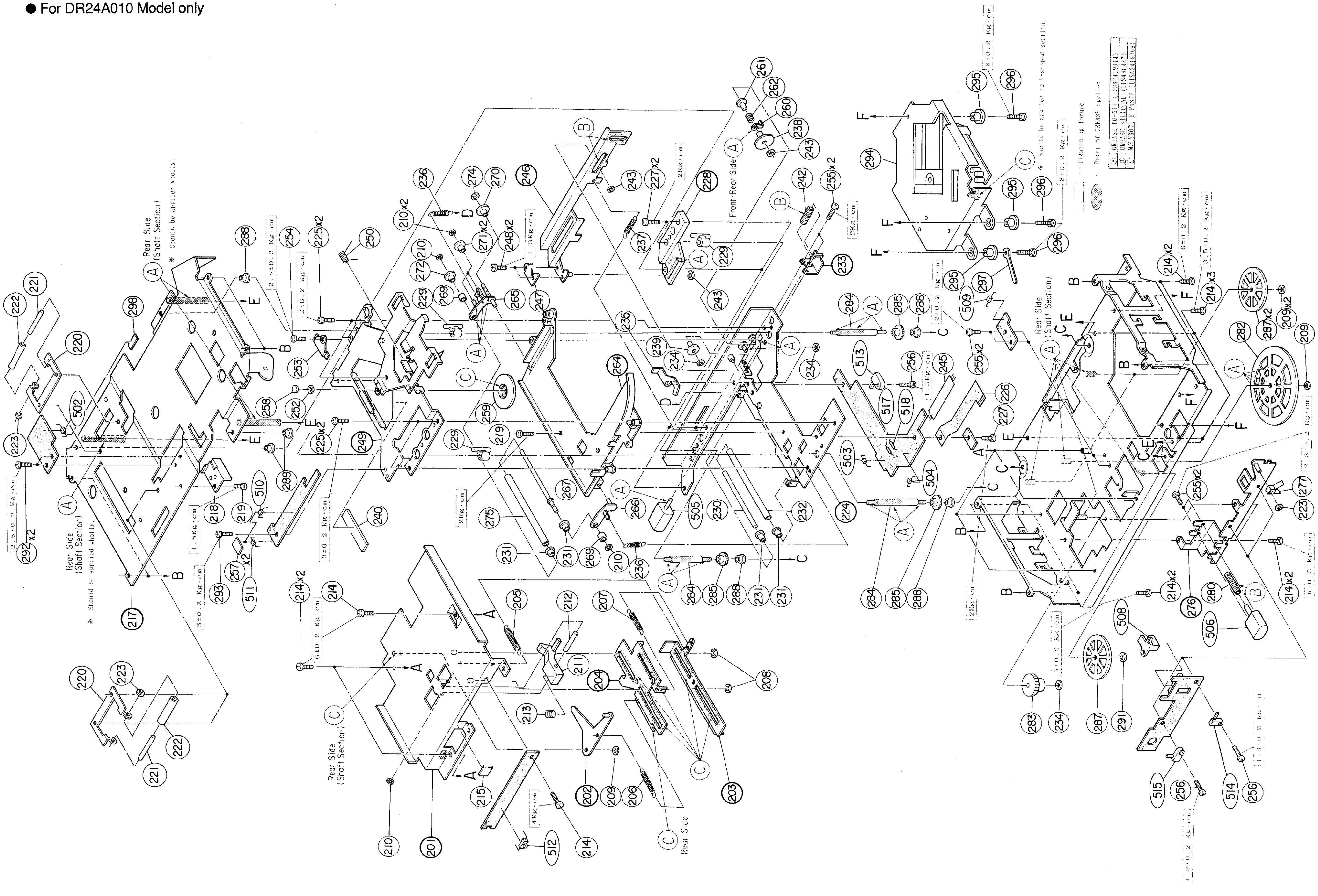
▭ ······Tightening Torque

▨ ······Point of GREASE applied.

Ⓐ	GREASE PG-671 (11S42419J14)
Ⓑ	MOLYKOTE OIL 6329 (11S40390G22)
Ⓒ	MOLYKOTE E PASTE (11S42419J09)

Exploded View (CD Mechanism) (2/2)

- For DR24A010 Model only


Rear Side
(Shaft Section)
※ Should be applied wholly.
2.5±0.2 Kg·cm
2±0.2 Kg·cm
3±0.2 Kg·cm
1.5Kg·cm
6±0.2 Kg·cm
4Kg·cm
2Kg·cm
1.3Kg·cm
3.5±0.2 Kg·cm
6±0.5 Kg·cm
2.3±0.2 Kg·cm
1.3±0.2 Kg·cm
Front·Rear Side
Rear Side
292 x2
223
502
220
221
222
298
288
254
225 x2
250
253
258
252
217
218
219
510
293
257 x2
511
249
240
214 x2
214
201
210
215
512
205
212
211
213
202
209
206
204
207
208
203
236
210 x2
274
270
271 x2
272
269
229
265
248 x2
247
246
259
267
275
231
266
505
264
235
239
234
230
232
284
285
288
237
227 x2
228
243
233
242
255 x2
261
262
260
238
224
503
504
513
517
518
256
245
226
227
294
295
296
297
509
282
287 x2
209 x2
214 x3
276
280
506
277
283
287
291
508
515
514
A
B
C
D
E
F
※ Should be applied to V-shaped section.
3±0.2 Kg·cm ……Tightening Torque
……Point of GREASE applied.
Ⓐ GREASE PG-671 (11S42419J14)
Ⓑ GREASE SILICONE (11S490487)
Ⓒ MOLYKOTE E PASTE (11S42419J09)
1
2
3
4
5
A
B
C
D
E
F
G
H

CD Mechanism Assembly Parts List

<For DR24A010 Model Only>

Symbol No.	Index	Part No.	Description		
205	4-D	41B11514W04	Spring, Extension		
206	5-D	41B11514W05	Spring, Extension		
207	4-D	41B11514W06	Spring, Extension		
208	4-E	04C42091G02	Ring, "E" (M3. 2)		
209		04B41345P04	Washer, Lock (M2. 6)		
210		04B41345P02	Washer, Lock (M1. 7)		
211	4-D	45A11483W01	Arm, Lock Magazine		
212	4-D	47A11405W01	Shaft, Arm Lock		
213	4-D	41A11480W02	Spring, Compression		
214		03S44205G30	Screw, Pan (M2. 6 × 4)		
215	5-C	14S20875W87	Insulator, Cover		
218	3-B	43A13109W01	Spacer, Magazine		
219		03S44205G87	Screw, Pan (M2 × 4)		
220		41A11425W01	Spring, M. Hold		
221		47A11428W01	Roller, M. Hold		
222		47A11429W01	Shaft, Roller		
223		04B41345P01	Washer, Lock (M1. 2)		
225		03S40014G15	Screw, W/Washer (M2 × 8)		
226	3-F	84T11243W01	FPC Elevator P. C. Board		
227		03S40014G61	Screw, W/Washer (M2 × 5)		
229		45A11284W01	Arm, Elevator		
230	3-E	47A11273W01	Shaft, Roller Under		
231		43A11272W01	Bush, Roller		
232	3-E	75A11925W01	Rubber, Roller		
234		04B41345P13	Washer, Lock (M1. 7)		
235	2-D	01A11565W01	Assy., Rivet Arm Switch DL		
236		41B11514W08	Spring, Extension		
237	2-D	41B11514W02	Spring, Extension		
238	2-E	44A11481W01	Gear, Lever Middle		
239	3-D	44B22139W01	Gear, Lever		
240	3-C	75A96179F01	Sheet, Support Disc		
242	2-E	44A11281W01	Worm		
243		04B41345P22	Washer, Lock (M2. 6)		
245	3-F	30T73687F17	Parallel, Wire (3P)		
247	2-D	45A11441W01	Arm, Block A Magazine		

Symbol No.	Index	Part No.	Description		
248	2-D	03S94385F01	Screw, Pan (M1. 7 × 2. 3)		
250	2-C	41A11559W01	Spring, Torsion		
252	3-B	04B41345P24	Washer, Lock (M2. 1)		
253	3-B	07A11468W01	Plate, Top		
254	2-B	03S44205G94	Screw, Pan (M1. 7 × 2)		
255		03S40014G62	Screw W/Washer (M2 × 3)		
256		03S10042W06	Screw, Pan (M2 × 7)		
257	4-B	75S72374F97	Cushion, Rubber		
258	3-B	43A41006F01	Spacer, Polyslider		
259	3-C	01A31486W01	Assy., Rivet Clamper		
260	1-E	45A31789W01	Arm, Kick Gear		
261	1-E	43A11485W01	Bush, Gear		
262	1-E	41A11480W01	Spring, Compression		
265	2-D	01A11566W01	Assy., Rivet Arm Roller		
266	3-D	01A11567W01	Assy., Rivet Arm Roller (R)		
267	3-D	47A11274W01	Shaft, Roller		
269		47A11302W01	Roller, Lifter		
270	2-C	44A11278W01	Worm		
271	2-C	44A11279W01	Gear, Roller Middle		
272	2-C	44A11280W01	Gear, Loading Roller		
274	2-C	04C42091G06	Ring, "E" (M1. 5)		
275	3-C	75A11925W01	Rubber, Roller		
277	3-H	45A11265W01	Arm, Switch HP		
280	4-G	44A11276W01	Worm		
282	2-H	44B11283W01	Gear, Timing		
283	4-F	44A11275W01	Worm Wheel		
284		47A12135W01	Shaft, Screw Elevator		
285		44A11277W01	Gear, Screw		
287		44B11282W01	Gear, Idle		
288		43A11271W01	Bearing, Screw Elevator		
291	4-G	04C42091G11	Ring, "E" (M2. 5)		
292	4-A	03S94385F09	Screw, Pan (M2 × 3)		
293	4-B	03S44205G99	Screw, Bind (M2 × 3)		
294	2-F	01V21800W05	Assy., Drive Unit		
295		43A12211W01	Sleeve, Cushion		

NOTE : The parts without part numbers are not supplied.

Symbol No.	Index	Part No.	Description		
296		03S38013W10	Screw, Pan (M2 × 7)		
297	2-F	29C41045P09	Lug, Wrap Around		
298	2-A	75A20928W01	Rubber, Top Chassis		
300	3-B	44A90998F01	Gear, Screw		
301	2-A	07C10922W02	Bracket, Motor		
302	3-A	46A91007F02	Stud, Gear		
303	1-C	03S40014G07	Screw, W/Washer (M2 × 4)		
304	2-A	44A90996F01	Gear, Motor		
305	3-A	44A90997F01	Gear, Middle		
306	3-A	04B41345P02	Washer, Lock (M1. 7)		
307	2-A	41A10928W03	Spring, Shaft-150		
308	3-B	43A13508W01	Spacer, Shaft		
309	2-B	47A10927W01	Shaft, Screw		
310	1-A	84T15149W01	FPC Actuate P. C. Board		
311	3-A	03S40014G66	Screw, W/Washer (M2 × 3. 5)		
313	4-C	75A21138W01	Sheet, Shaft		
316	3-C	47A20146W01	Shaft, Pick-Up-50°		
317	3-D	07A10921W01	Bracket, Shaft		
318		03S40014G62	Screw, W/Washer (M2 × 3)		
319	2-C	07B10923W01	Bracket, Screw		
320		03D40121T38	Screw, W/Double Washer (M2 × 5)		
321	1-A	03S40014G69	Screw, W/Washer (M2 × 8. 5)		
322	3-C	41C10925W02	Spring, Nut		
325	3-C	47A21175W01	Shaft, Pick-Up -50°(B)		
326		75A12210W01	Rubber, Cushion		
328	2-B	01T70458F02	Assy., GND Wire		
330	4-C	14S81482F10	Insulator, Cover		

Symbol No.	Index	Part No.	Description		
Miscellaneous					
501	3-C	88T15309W01	Pick-Up SF-87. 5		
502	3-A	48T16057W01	LED, AN501 (RED)		
503	3-E	48T16057W02	LED, AN501-B1 (RED)		
504	3-F	48T16057W02	LED, AN501-B1 (RED)		
505	3-E	59T90879F01	Motor, Load 6V-260mA (LOADING)		
506	4-G	59T15716W01	Motor, Load 8V-330mA (ELEVATOR)		
507	2-C	59T52973F03	Motor, Servo 6V-210mA (SLED)		
508	4-G	48T15722W01	Interrupter Photo, GP1S51		
509	2-F	48T15938W02	TR., Photo PS5022		
510	3-B	48T15938W02	TR., Photo PS5022		
511	4-B	48T15938W02	TR., Photo PS5022		
512	5-D	40T10876W12	Switch, Tact SKHLAJ (EJECT)		
513	3-E	40T71025F01	Switch, Detector (LOADING)		
514	5-H	40T71025F01	Switch, Detector (HOME POSITION)		
515	5-G	40T71025F01	Switch, Detector (MAGAZINE)		
516	1-C	40T71025F01	Switch, Detector (LIMIT)		

NOTE : The parts without part numbers are not supplied.

CD Mechanism Assembly Parts List

<For DR24A020 Model Only>

Symbol No.	Index	Part No.	Description		
205	4-D	41B11514W04	Spring, Extension		
206	5-D	41B11514W05	Spring, Extension		
207	4-D	41B11514W06	Spring, Extension		
208	4-E	04B41345P39	Washer, Lock (M3. 5)		
209		04B41345P04	Washer, Lock (M2. 6)		
210		04B41345P02	Washer, Lock (M1. 7)		
211	4-D	45A11483W01	Arm, Lock Magazine		
212	4-D	47A11405W01	Shaft, Arm Lock		
213	4-D	41A11480W02	Spring, Compression		
214		03S44205G30	Screw, Pan (M2. 6 × 4)		
215		04C42091G06	Ring, "E" (M1. 5)		
218		03S44205G99	Screw, Bind (M2 × 3)		
219	3-C	03S44205G87	Screw, Pan (M2 × 4)		
220		43A11271W01	Bearing, Screw Elevator		
221		44B11282W01	Gear, Idle		
222		44A11277W01	Gear, Screw		
223		04B41345P01	Washer, Lock (M1. 2)		
225		03S38013W07	Screw, Pan (M2 × 8. 5)		
226	3-F	84T11243W01	EPC Elevator P. C. Board		
227		03S44205G95	Screw, Bind (M2 × 4)		
229		45A11284W01	Arm, Elevator		
230	3-E	01A40510W01	Assy., Shaft Roller Under		
231		43A11272W01	Bush, Roller		
232	4-G	04C42091G11	Ring, "E" (M2. 5)		
233		47A12135W01	Shaft, Screw Elevator		
234		04B41345P13	Washer, Lock (M1. 7)		
235	3-D	01A11565W01	Assy., Rivet Arm Switch		
236		41B11514W08	Spring, Extension		
237	2-D	41B11514W02	Spring, Extension		
238	2-E	44A11481W01	Gear, Lever Middle		
239	2-E	44B22139W01	Gear, Lever		
240	4-F	41A31495W01	Spring, Elevator		
242	2-E	44A11281W01	Worm		
243	2-E	04B41345P22	Washer, Lock (M2. 6)		
245	3-F	30T73687F17	Wire, Parallel (3P)		
247	2-D	45A11441W01	Arm, Block A Magazine		
248	2-D	03S94385F01	Screw, Pan (M1.7 × 2. 3)		
250	2-C	41A11559W01	Spring, Torsion		
252	3-B	04B41345P24	Washer, Lock (M2. 1)		
253	3-B	07A31787W01	Plate, Top		
254	2-B	03S44205G94	Screw, Pan (M1.7 × 2)		
255		03S40014G62	Screw, W/Washer (M2 × 3)		
256		03S10042W06	Screw, Pan (M2 × 7)		
257	2-G	29C41045P09	Lug, Wrap Around		
258	3-B	43A41006F01	Spacer, Polyslider		
259	3-C	01A31782W01	Assy., Rivet Clamper		
260	2-E	45A31789W01	Arm, Kick Gear		
261	2-E	43A11485W01	Bush, Gear		
262	2-E	41A11480W01	Spring, Compression		
265	2-D	01A31779W01	Assy., Rivet Arm Roller (L)		
266	3-D	01A31780W01	Assy., Rivet Arm Roller (R)		
267	3-D	01A40509W01	Assy., Shaft Roller		
268	4-F	44A11275W01	Worm, Wheel		
269		47A11302W01	Roller, Lifter		
270	2-C	44A11278W01	Worm		
271	2-C	44A11279W01	Gear, Roller Middle		
272	2-C	44A11280W01	Gear, Loading Roller		
273		03S38013W10	Screw, Pan (M2 × 7)		
274	2-G	44B11283W01	Gear, Timing		
275		43A12211W01	Sleeve, Cushion		
277	3-H	45A31790W01	Arm, Switch HP		
278	2-F	01V21800W05	Assy., Drive Unit		
280	4-G	44A11276W01	Worm		
282	3-C	43A41006F01	Spacer, Polyslider		
283		03S40014G12	Screw, W/Washer (M2.6 × 4)		
284		41A11425W01	Spring, M. Hold		
285		47A11428W01	Roller, M. Hold		
286		47A11429W01	Shaft, Roller		
287		03S44205G96	Screw, Bind (M2 × 5)		
300	3-B	44A90998F01	Gear, Screw		
301	2-A	07C10922W02	Bracket, Motor		
302	3-A	46A91007F02	Stud, Gear		
303	2-C	03S40014G07	Screw, W/Washer (M2 × 4)		
304	2-A	44A90996F01	Gear, Motor		
305	3-A	44A90997F01	Gear, Middle		

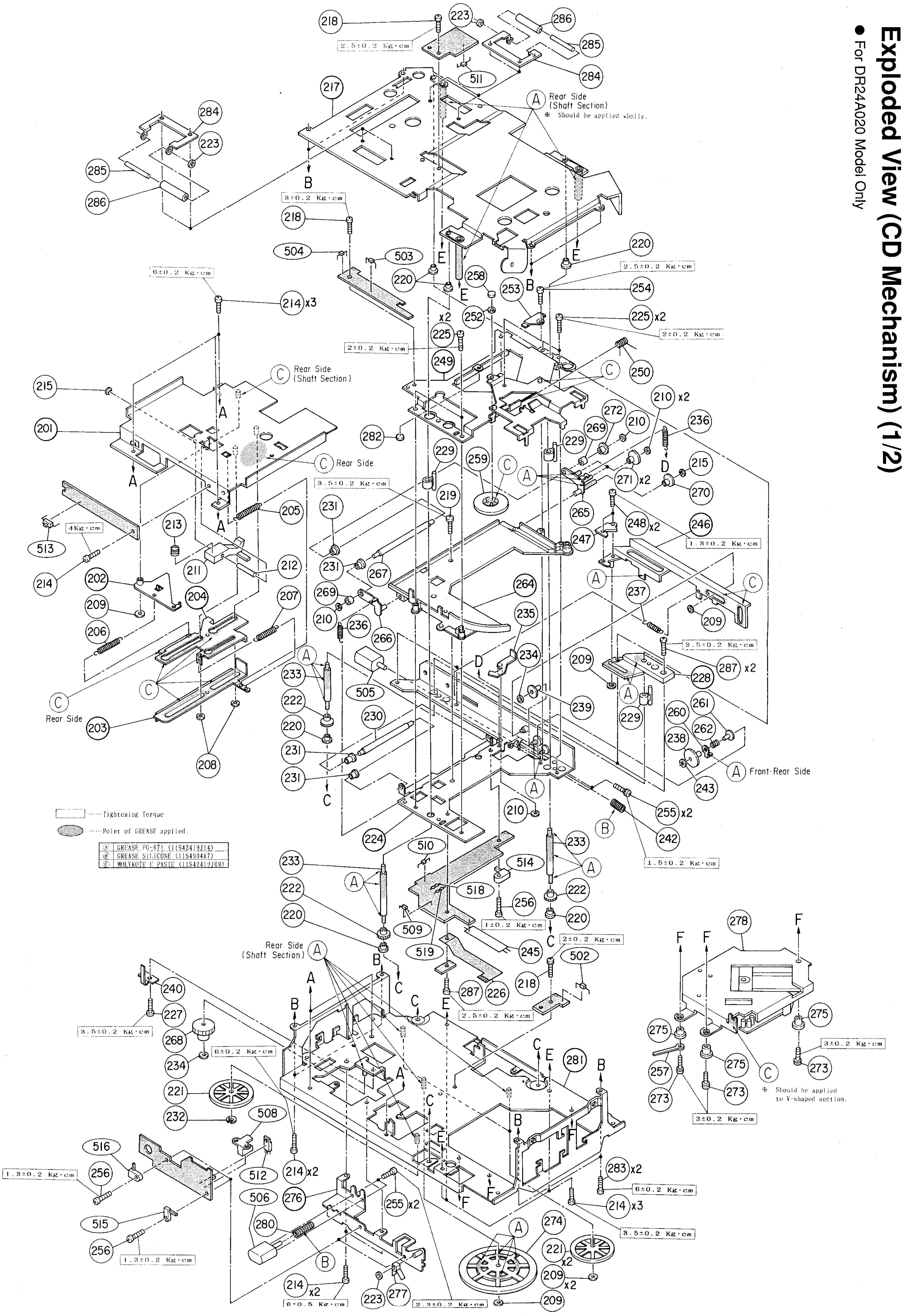
NOTE : The parts without part numbers are not supplied.

Symbol No.	Index	Part No.	Description		
306	3-A	04B41345P02	Washer, Lock (M1. 7)		
307	2-A	41A10928W03	Spring, Shaft-150		
308	3-B	43A13508W01	Spaceer, Shaft		
309	2-B	47A10927W01	Shaft, Screw		
310	2-A	84T15149W01	FPC Actuate P. C. Board		
311	2-A	03S40014G66	Screw, W/Washer (M2 X 3. 5)		
312	2-B	01T70458F02	Assy., GND Wire		
313	4-C	75A21138W01	Sheet, Shaft		
315		75A12210W01	Rubber, Cushion		
316	3-C	47A20146W01	Shaft, Pick-Up-50°		
317	3-D	07A10921W01	Bracket, Shaft		
318		03S40014G62	Screw, W/Washer (M2 X 3)		
319	2-C	07B10923W01	Bracket, Screw		
320		03D40121T38	Screw, W/Double Washer (M2 X 5)		
321	1-B	03S40014G69	Scerw, W/Washer (M2 X 8. 5)		
322	3-C	41C10925W02	Spring, Nut		
324	3-C	47A21175W01	Shaft, Pick-Up-50° (B)		
325	4-C	14S81482F10	Insulator, Cover		
Miscellaneous					
501	4-C	88T15309W01	Pick-Up Unit SF-87. 5		
502	2-F	48T16057W01	LED, AN501 (RED)		
503	3-B	48T16057W01	LED, AN501 (RED)		
504	4-B	48T16057W01	LED, AN501 (RED)		
505	3-D	59T90879F01	Motor, Load 6V-260mA (LOADING)		
506	4-G	59T15716W01	Motor, Load 8V-330mA (ELEVATOR)		
507	2-B	59T52973F03	Motor, Servo 6V-210mA (SLED)		
508	4-G	48T15722W01	Interrupter, Photo GP1S51		
509	3-F	48T15938W03	Transistor, Photo PS5022-B1		
510	3-E	48T15938W03	Transistor, Photo PS5022-B1		
511	3-A	48T15938W02	Transistor, Photo PS5022		
512	4-G	48T51089F04	Transistor, 2SA937		
513	5-D	40T10876W12	Switch, Tact SKHLAJ (EJECT)		
514	3-E	40T71025F01	Switch, Detector (LOADING)		
515	5-G	40T71025F01	Switch, Detector (HOME POSITION)		
516	5-G	40T71025F01	Switch, Detector (MAGAZINE)		
517	1-C	40T71025F01	Switch, Detector (LIMIT)		

NOTE : The parts without part numbers are not supplied.

Exploded View (CD Mechanism) (1/2)

- For DR24A020 Model Only



218
2.5±0.2 Kg·cm
223
286
285
284
511
217
A Rear Side (Shaft Section)
* Should be applied wholly.
284
223
285
286
B
3±0.2 Kg·cm
218
504
503
E
E
220
2.5±0.2 Kg·cm
220
258
B
253
254
225 x2
2±0.2 Kg·cm
6±0.2 Kg·cm
214 x3
x2
252
225
2±0.2 Kg·cm
249
250
C Rear Side (Shaft Section)
C
215
A
210 x2
272
210
236
201
282
229
269
C Rear Side
259
C
A
D
215
229
271 x2
270
3.5±0.2 Kg·cm
A
219
265
248 x2
246
205
231
247
1.3±0.2 Kg·cm
513
4Kg·cm
213
A
211
212
231
267
C
214
202
269
264
237
209
204
207
210
236
235
209
206
266
3.5±0.2 Kg·cm
A
D
234
209
287 x2
233
C
505
228
C
222
239
A
229
C
Rear Side
203
220
230
260
261
262
238
231
208
231
C
A Front·Rear Side
243
210
255 x2
B
242
224
233
A
1.5±0.2 Kg·cm
233
510
514
A
A
518
222
222
256
220
1±0.2 Kg·cm
220
509
C
2±0.2 Kg·cm
519
245
Rear Side (Shaft Section) A
B
502
A
C
218
278
F
F
F
240
C
E
287
226
B
2.5±0.2 Kg·cm
227
3.5±0.2 Kg·cm
268
6±0.2 Kg·cm
C
E
281
B
275
275
234
A
257
275
3±0.2 Kg·cm
273
221
C
273
273
C
* Should be applied to V-shaped section.
232
508
B
3±0.2 Kg·cm
516
E
F
1.3±0.2 Kg·cm
256
512
214 x2
F
283 x2
F
6±0.2 Kg·cm
276
255 x2
214 x3
506
3.5±0.2 Kg·cm
515
280
A
274
256
1.3±0.2 Kg·cm
B
221 x2
214 x2
209 x2
6±0.5 Kg·cm
223
277
2.3±0.2 Kg·cm
209

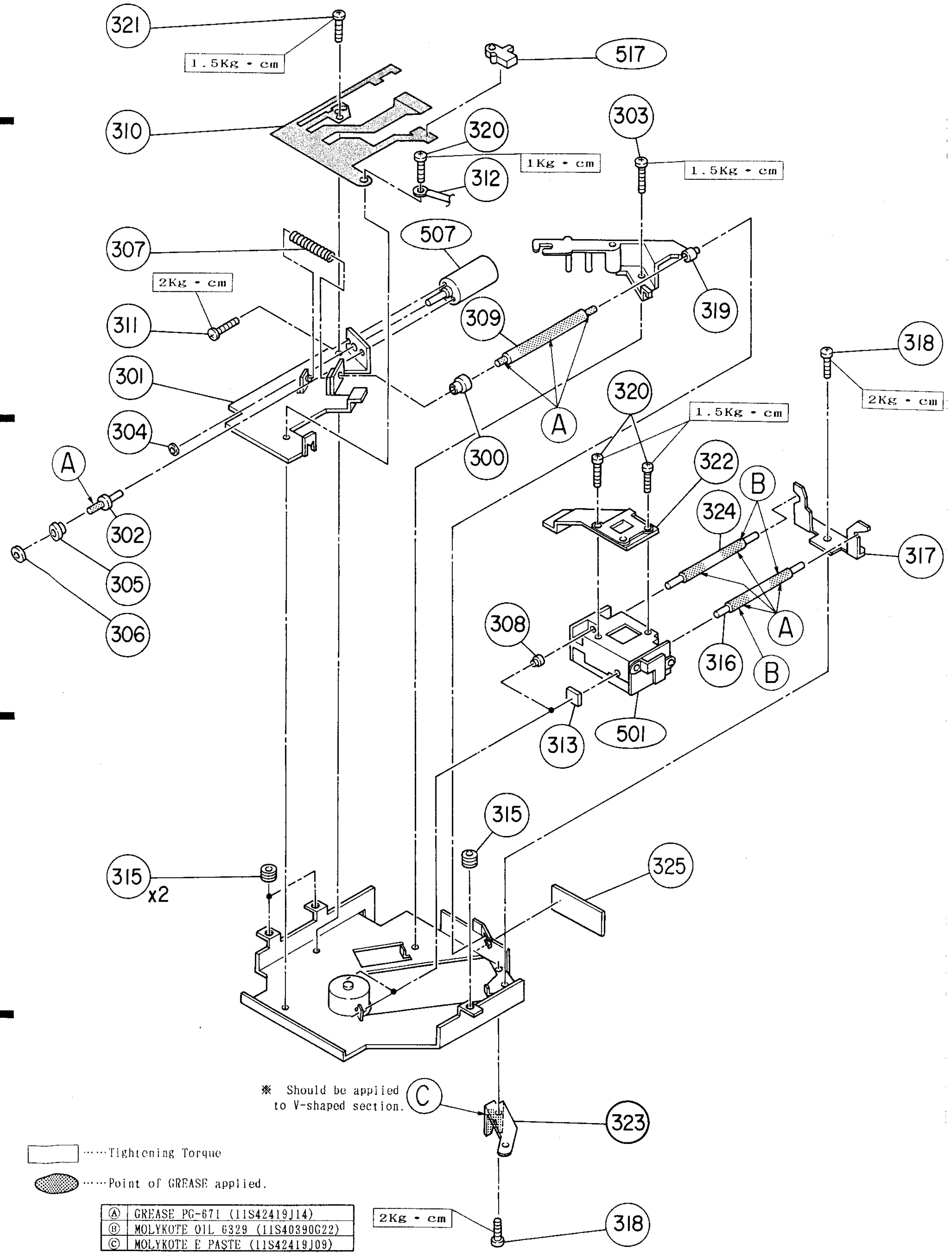
▭ ……Tightening Torque

▨ ……Point of GREASE applied.

Ⓐ	GREASE PG-671 (11S42419J14)
Ⓑ	GREASE SILICONE (11S490487)
Ⓒ	MOLYKOTE E PASTE (11S42419J09)

Exploded View (CD Mechanism) (2/2)

- For DR24A020 Model only


1
2
3
4
5
321
1.5Kg・cm
517
310
320
1Kg・cm
312
303
1.5Kg・cm
507
307
2Kg・cm
311
319
309
301
304
300
A
318
2Kg・cm
320
1.5Kg・cm
322
B
324
A
302
305
306
317
308
316
B
A
313
501
315
315
x2
325
323
318
2Kg・cm
A
B
C
D

※ Should be applied to V-shaped section. Ⓒ

▭ ……Tightening Torque

▨ ……Point of GREASE applied.

Ⓐ	GREASE PG-671 (11S42419J14)
Ⓑ	MOLYKOTE OIL 6329 (11S40390G22)
Ⓒ	MOLYKOTE E PASTE (11S42419J09)

Memo

CD Mechanism Assembly Parts List

<For DR24A02A/030/040 Model Only>

Symbol No.		Index	Part No.	Description		
	205	4-D	41B11514W04	Spring, Extension		
	206	5-D	41B11514W05	Spring, Extension		
	207	4-D	41B11514W06	Spring, Extension		
	208	4-E	04B41345P39	Washer, Lock (M3. 5)		
	209		04B41345P04	Washer, Lock (M2. 6)		
	210		04B41345P02	Washer, Lock (M1. 7)		
	211	4-D	45A11483W01	Arm, Lock Magazine		
	212	4-D	47A11405W01	Shaft, Arm Lock		
	213	4-D	41A11480W02	Spring, Compression		
	214		03S44205G30	Screw, Pan (M2. 6 X 4)		
	215		04C42091G06	Ring, "E" (M1. 5)		
	218		03S44205G99	Screw, Bind (M2 X 3)		
	219	3-C	03S44205G87	Screw, Pan (M2 X 4)		
	220		43A11271W01	Bearing, Screw Elevator		
	221		44B11282W01	Gear, Idle		
	222		44A11277W01	Gear, Screw		
	223	3-H	04B41345P01	Washer, Lock (M1. 2)		
	225		03S38013W07	Screw, Pan (M2 5 8. 5)		
	226	3-F	84T11243W01	EPC Elevator P. C. Board		
	227	4-F	03S44205G95	Screw, Bind (M2 X 4)		
	229		45A11284W01	Arm, Elevator		
	230	3-E	01A40510W01	Assy., Shaft Roller Under		
	231		43A11272W01	Bush, Roller		
	232		04C42091G11	Ring, "E" (M2. 5)		
	233		47A12135W01	Shaft, Screw Elevator		
	234		04B41345P13	Washer, Lock (M1. 7)		
	235	3-D	01A11565W01	Assy., Rivet Arm Switch		
	236		41B11514W08	Spring, Extension		
	237	2-D	41B11514W02	Spring, Extension		
	238	2-E	44A11481W01	Gear, Lever Middle		
	239	2-E	44B22139W01	Gear, Lever		
	240	4-F	41A31495W01	Spring, Elevator		
	242	2-E	44A11281W01	Worm		
	243	2-E	04B41345P22	Washer, Lock (M2. 6)		
	245	3-F	30T73687F17	Wire, Parallel (3P)		

Symbol No.		Index	Part No.	Description		
	247	2-D	45A11441W01	Arm, Block A Magazine		
	248	2-D	03S94385F01	Screw, Pan (M1.7 X 2. 3)		
	250	2-C	41A11559W01	Spring, Torsion		
	252	3-B	04B41345P24	Washer, Lock (M2. 1)		
	253	3-B	07A31787W01	Plate, Top		
	254	2-B	03S44205G94	Screw, Pan (M1.7 X 2)		
	255		03S40014G62	Screw, W/Washer (M2 X 3)		
	256		03S10042W06	Screw, Pan (M2 X 7)		
	257	2-G	29C41045P09	Lug, Wrap Around		
	258	3-B	43A41006F01	Spacer, Polyslider		
	259	3-C	01A31782W01	Assy., Rivet Clamper		
	260	2-E	45A31789W01	Arm, Kick Gear		
	261	2-E	43A11485W01	Bush, Gear		
	262	2-E	41A11480W01	Spring, Compression		
	265	2-D	01A31779W01	Assy., Rivet Arm Roller (L)		
	266	3-D	01A31780W01	Assy., Rivet Arm Roller (R)		
	267	3-D	01A40509W01	Assy., Shaft Roller		
	268	4-F	44A11275W01	Worm, Wheel		
	269		47A11302W01	Roller, Lifter		
	270	2-C	44A11278W01	Worm		
	271	2-C	44A11279W01	Gear, Roller Middle		
	272	2-C	44A11280W01	Gear, Loading Roller		
	273		03S38013W10	Screw, Pan (M2 X 7)		
	274	2-G	44B11283W01	Gear, Timing		
	275		43A12211W01	Sleeve, Cushion		
	277	3-H	45A31790W01	Arm, Switch HP		
□	278	2-F	01V43800W61	Assy., Drive Unit		
○	278	2-F	01V43500W73	Assy., Drive Unit		
△	278	2-F	01V43500W73	Assy., Drive Unit		
	280	4-G	44A11276W01	Worm		
	282		03S44205G96	Screw, Bind (M2 X 5)		
	283		03S40014G12	Screw, W/Washer (M2. 6 X 4)		
	300	3-B	44A90998F01	Gear, Screw		
	301	2-A	07C10922W02	Bracket, Motor		
	302	3-A	46A91007F02	Stud, Gear		

NOTE : The parts without part numbers are not supplied.

□ : For DR24A02A Model Only, ○: For DR24A030 Model Only, △: For DR24A040 Model Only, Others : Common.

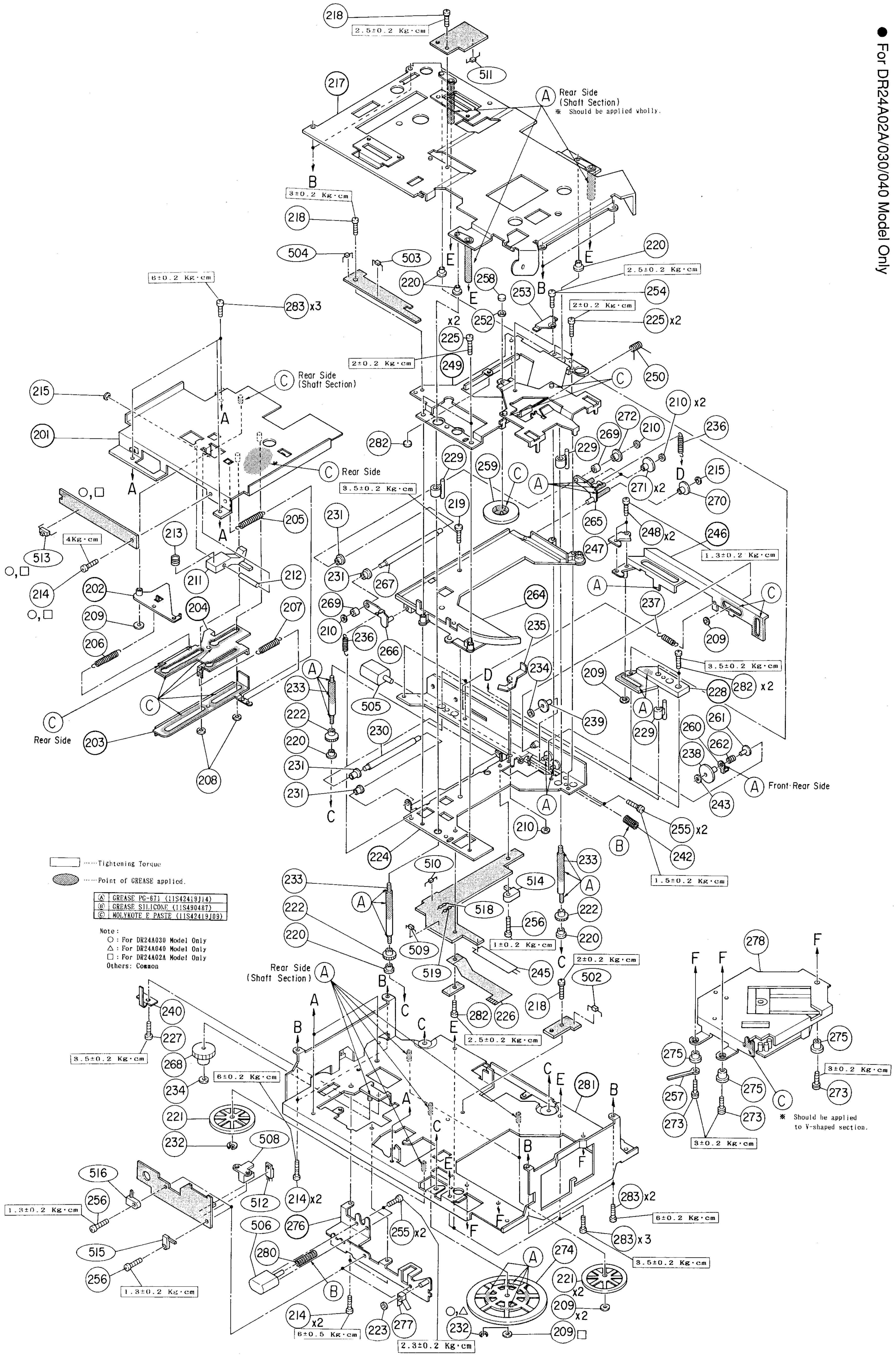
Symbol No.		Index	Part No.	Description		
	303	2-C	03S40014G07	Screw, W/Washer (M2 × 4)		
	304	2-A	44A90996F01	Gear, Motor		
	305	3-A	44A90997F01	Gear, Middle		
	306	3-A	04B41345P02	Washer, Lock (M1. 7)		
	307	2-A	41A10928W03	Spring, Shaft-150		
	308		07A30961W01	Stopper, Shaft (B)		
	309	2-B	47A10927W02	Shaft, Screw		
□	310	1-A	84T15149W01	FPC Actuate P. C. Board		
○	310	1-A	84T45270W01	FPC Actuate P. C. Board		
△	310	1-A	84T45270W01	FPC Actuate P. C. Board		
	311	2-A	03S40014G66	Screw, W/Washer (M2 × 3. 5)		
	312	2-B	01T70458F02	Assy., GND Wire		
	313		03S70494F17	Screw, Pan (M1. 7 × 8)		
	315		75A12210W01	Rubber, Cushion		
	316	3-C	47A30925W01	Shaft, Pick-Up		
	317	1-B	07A40743W01	Bracket		
□	318	3-B	04S40075G61	Washer, Polyslider (M2. 1)		
○	318	3-B	04S40075G06	Washer, Polyslider (M2. 1)		
△	318	3-B	04S40075G06	Washer, Polyslider (M2. 1)		
	319	2-C	07B10923W01	Bracket, Screw (M2. 1)		
	320		03D40121T38	Screw, W/Double Washer (M2 × 5)		
	321	1-B	03S40014G69	Scerw, W/Washer (M2 × 8. 5)		
	322	3-C	41C10925W02	Spring, Nut		
				Miscellaneous		
	501	4-C	88T15309W01	Pick-Up Unit SF-87. 5		
	502	2-F	48T16057W01	LED, AN501 (RED)		
	503	3-B	48T16057W01	LED, AN501 (RED)		
	504	4-B	48T16057W01	LED, AN501 (RED)		
	505	3-D	59T90879F01	Motor, Load 6V-260mA (LOADING)		
	506	4-G	59T15716W01	Motor, Load 8V-330mA (ELEVATOR)		
	507	2-B	59T52973F03	Motor, Servo 6V-210mA (SLED)		
	508	4-G	48T15722W01	Interrupter, Photo GP1S51		
	509	3-F	48T15938W03	Transistor, Photo PS5022-B1		
	510	3-E	48T15938W03	Transistor, Photo PS5022-B1		
	511	3-A	48T15938W02	Transistor, Photo PS5022		
	512	4-G	48T51089F04	Transistor, 2SA937		
□	513	5-D	40T10876W12	Switch, Tact SKHLAJ (EJECT)		
○	513	5-D	40T10876W12	Switch, Tact SKHLAJ (EJECT)		
	514	3-E	40T71025F01	Switch, Detector (LOADING)		
	515	5-G	40T71025F01	Switch, Detector (HOME POSITION)		
	516	5-G	40T71025F01	Switch, Detector (MAGAZINE)		
	517	1-C	40T71025F01	Switch, Detector (LIMIT)		

NOTE : The parts without part numbers are not supplied.

□ : For DR24A02A Model Only, ○ : For DR24A030 Model Only, △ : For DR24A040 Model Only, Others : Common.

Exploded View (CD Mechanism) (1/2)

- For DR24A02A/030/040 Model Only



218
2.5±0.2 Kg·cm
511
217
A Rear Side (Shaft Section)
※ Should be applied wholly.
B
3±0.2 Kg·cm
218
504
503
E
220
2.5±0.2 Kg·cm
254
258
253
252
2±0.2 Kg·cm
225 x2
6±0.2 Kg·cm
283 x3
x2
225
249
250
2±0.2 Kg·cm
C Rear Side (Shaft Section)
215
201
C Rear Side
210 x2
272
269
236
229
282
259
271 x2
215
270
D
3.5±0.2 Kg·cm
219
205
231
265
248 x2
246
1.3±0.2 Kg·cm
513
4Kg·cm
213
211
212
267
214
202
264
237
209
204
207
235
209
206
266
234
3.5±0.2 Kg·cm
228
282 x2
233
505
239
229
261
260
262
238
203
222
230
Rear Side
208
Front·Rear Side
243
224
210
255 x2
242
1.5±0.2 Kg·cm
510
514
518
256
1±0.2 Kg·cm
509
519
245
2±0.2 Kg·cm
502
278
F
Rear Side (Shaft Section)
240
227
3.5±0.2 Kg·cm
268
6±0.2 Kg·cm
226
2.5±0.2 Kg·cm
281
275
3±0.2 Kg·cm
273
257
221
232
508
516
512
214 x2
283 x2
6±0.2 Kg·cm
283 x3
3.5±0.2 Kg·cm
※ Should be applied to V-shaped section.
1.3±0.2 Kg·cm
506
276
255 x2
274
515
280
221 x2
209 x2
6±0.5 Kg·cm
223
277
232
209
2.3±0.2 Kg·cm
○,□
○,△

▭ ······Tightening Torque

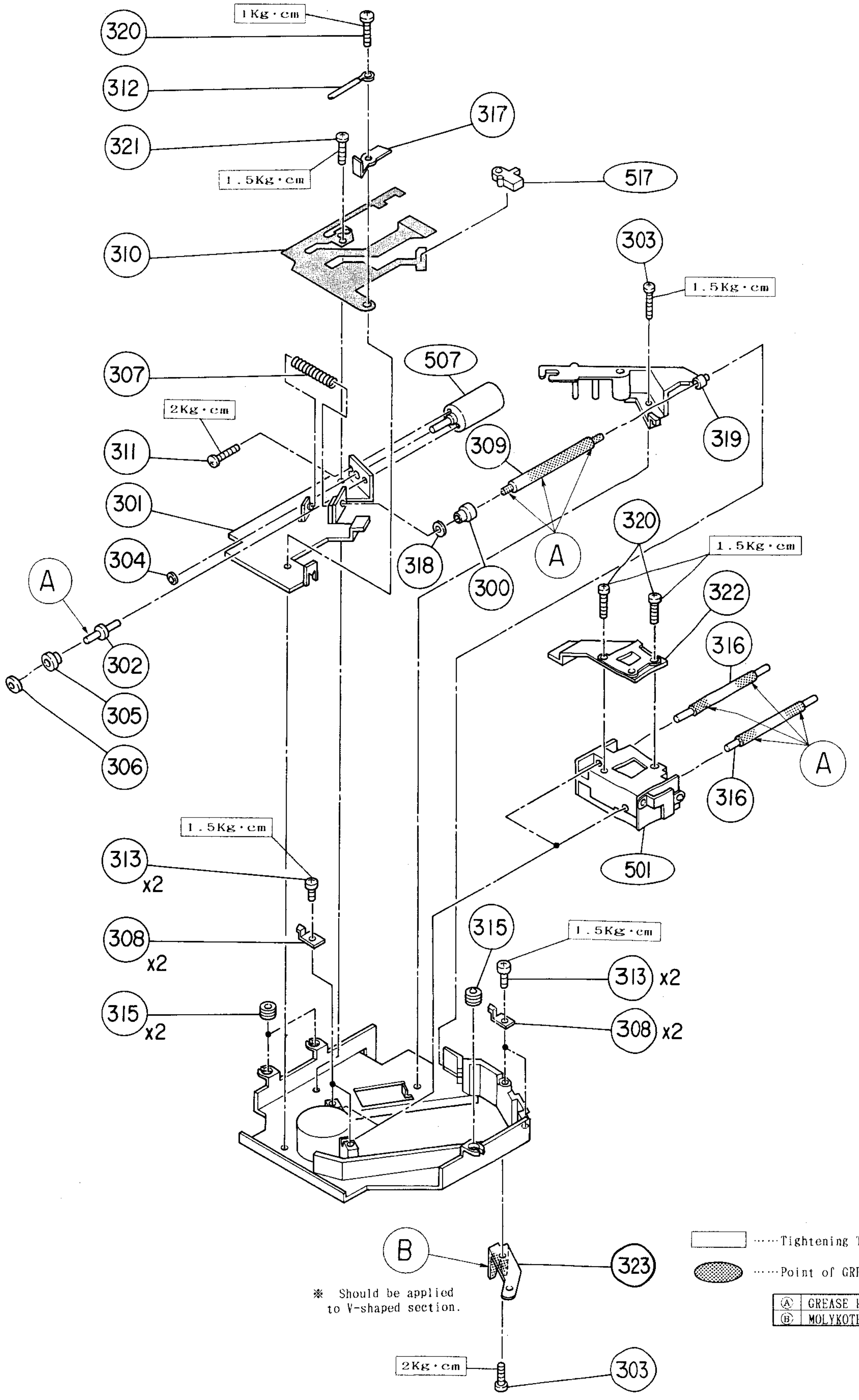
▨ ······Point of GREASE applied.

Ⓐ	GREASE PG-671 (11S42419J14)
Ⓑ	GREASE SILICONE (11S490487)
Ⓒ	MOLYKOTE E PASTE (11S42419J09)

Note:
○ : For DR24A030 Model Only
△ : For DR24A040 Model Only
□ : For DR24A02A Model Only
Others: Common

Exploded View (CD Mechanism) (2/2)

- For DR24A02A/030/040 Model only


1
2
3
4
5
320
1Kg·cm
312
321
317
1.5Kg·cm
517
310
303
1.5Kg·cm
307
507
2Kg·cm
319
311
309
301
320
304
A
1.5Kg·cm
A
318
300
322
302
316
305
306
A
316
501
1.5Kg·cm
313
x2
308
x2
315
x2
315
1.5Kg·cm
313 x2
308 x2
B
323
2Kg·cm
303
A
B
C
D

※ Should be applied
to V-shaped section.

▭ ······Tightening Torque

▨ ······Point of GREASE applied.

Ⓐ	GREASE PG-671 (11S42419J14)
Ⓑ	MOLYKOTE E PASTE (11S42419J09)

Memo

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